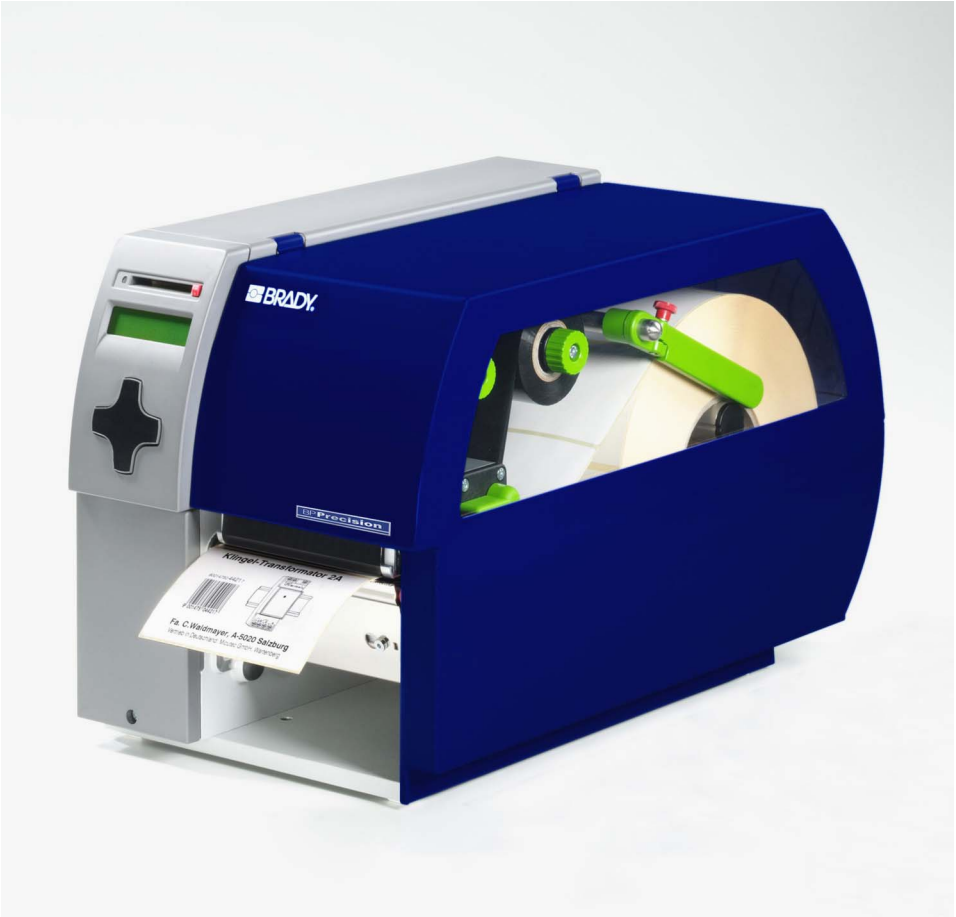
Transfer Printer

THT-BP Precision

Operator's Manual



Edition 2/05

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All specifications about delivery, design, performance and weight are given to the best of our current knowledge and are subject to change without prior notice.

Transfer Printer

THT-BP Precision

Operator's Manual

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EU - Conformity Declaration

Trademarks

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A General Guide to the Documentation

This manual contains the description and usage instructions for the **Transfer Printer THT-BP Precision**.
For detailed technical information on programming of the printer a separate Programming Guide is available on request. For specific information on maintenance and repair of the printer, a separate Service/Maintenance Manuals is available.

The first few chapters cover general information which is necessary for unpacking and setup of the printer, including ribbon and media loading. Further chapters cover the connection and usage of optional equipment that may be attached to the printer.

In the appendices, additional information such as cabling specifications, error messages and problem resolution, and maintenance/cleaning instructions are included.

Please take special note of the specifications for suggested print media and the references to cleaning the printer, to prevent damage, poor quality printing and avoidable failures of your printer.

Every effort has been made in the creation of this manual to provide as much information as possible in a form that is both understandable and useful.

We welcome your comments and suggestions regarding additions or corrections to improve future editions of this manual.

NOTICE !
The figures in this manual normally show the Transfer Printer THT-BP Precision 600 !
If there are important differences between the printer types you will find a notice !

1. Product Description

General Information

The devices of the **BP Precision** familiy are innovative printers which may be used in either direct thermal or thermal transfer mode. They offer a high resolution with virtually an unlimited variety of printout designs.
The center mounting plate is made of die-cast aluminum which makes it very robust and resistant to bending.
By using 32 bit-processors from Motorola and the internal memory of 8 MB (**BP Precision 200 / 300**) or 16 MB (**Precision 600**), very long large labels (up to a length of 39 in / 1000 mm) can be printed quickly. As standard equipment, the printers have a bi-directional parallel and a serial RS-232-interface. An optional RS-422/485-interface, USB-interface or ethernet-interface can be installed. The printers auto-sense which interface is actually used.
Furthermore the printers have a keyboard interface to connect a standard keyboard as well as a bar code scanner. By using a memory card it is possible to print and to enter variable data without any connection to a computer.
The ranging power supply (100-240VAC) allows the printers to be used around the world without re-configuration.
The operation and usage of the printers is simple and comfortable. All printer settings can be carried out with the Navigator Pad. To ease the operation the active key is marked in the several operating modes.
The graphic LCD display keeps the operator constantly informed about the current status of the printer.
The modular design of the printers guarantees efficient service.
A special feature of the **BP Presicion 200 / 300** printers is the possibility to change between the 203 dpi-printhead and the 300 dpi-printhead easily, with a minimum amount of time and effort.
For the printers a wide range of optional accessories like external un- and rewinders, label/tag cutters, different peel-off modules and a tamp applicator is available.

Printer Types

BP Precision printers are available in different equipment variations:

Printhead	Basic Devices	P-Versions
203 dpi	BP Precision 200	BP Precision 200P
300 dpi	BP Precision 300	BP Precision 300P
600 dpi	BP Precision 600	BP Precision 600P

Basic Devices : Printer types for tearing-off the labels
P-Versions : Printer types with internal rewinder and dispense plate for peeling-off the labels

Particular Features BP Precision 200P / 300P

The **P**-versions of the printers are specificly developed for operation in the peel-off mode and they are equipped with dispense edge as standard. In the peel-off mode the labels are removed from the silicon liner immediately after printing, and then available in a dispense position ready for further processing. A peel-off module, for example an optional present sensor, which is attached to the printer by the peripheral connector, indicates the presence of a label, and pauses the printing process until the label is removed. After taking the label from the dispense position the next label will be printed. To guarantee a maximum of reliability in the peel-off mode the printers are additionally equipped with a pair of rollers to cause the dispense tension.

NOTICE !
In the delivery state, BP Precision 200P and 300P are configured in such a way, that the print speed in the peel-off mode is limited to maximum 100mm/s. When using smaller labels or supply rolls with a small outside diameter it is possible to increase the print speed for the peel-off mode. We recommend to carry out preliminary tests with speed limitation switched off (see printer configuration) !

For the other **P**-version printers there is no limitation of the print speed in the peel-off mode.

Characteristics of the Thermal Printhead

CAUTION !
The thermal printhead is the most sensitive part of your printer. Please pay special attention to the following guidelines:

1) The glass cover on the printhead must not be touched with the hand. Also, do not use sharp objects (knives, screwdrivers, etc) to clean the printhead.
2) Ensure that the printhead is properly adjusted at all times.
3) Make sure that there are no high spots or debris on your media to lodge on or damage the printhead. The label surface must be smooth. Lower grade direct thermal paper is very rough and will act like sandpaper on the head, reducing the head's lifetime. Do not use low grade stock.
4) Clean the head at each change of ribbon, or with each new roll of direct thermal media, with a special cleaning pen, or a cotton swab with isopropyl alcohol.
5) Print with the lowest possible head temperature to increase the life of the printhead.
6) When changing the printhead, first turn the power off and disconnect the power cord. Then, place a clean paper towel or tissue under the head to provide a clean surface for it to rest on. When removing the head, hold it on the sides only.

Failure to observe the instructions above can lead to a reduced printhead life.

Compliances

The device complies with the following safety regulations :

CE : The printer complies with the following safety requirements
- EC Low Voltage Directive (73/23/EEC)
- EC Machinery Directive (98/37/EEC)
- EC Electromagnetic Compatibility Directive (89/336/EEC)

FCC : The device complies with the requirements of the FCC regulations part 15 for class A computers. Under disadvantageous circumstances, the operation of these devices may cause interference with radio or TV reception, which has to be eliminated by the operator.

WARNING !

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Instructions for the Lithium Battery

The PCB of the printer is equipped with a Lithium battery.

Take necessary precautions against a possible short circuit if the battery is not fully discharged. Properly remove the battery should the printer be scrapped.

Technical Specifications

Printhead

Printhead Type :	Direct thermal or thermal transfer	
Printhead Model :	BP Precision 200/300:	Thick film transfer printhead
	BP Precision 600:	Thin film transfer printhead
Printhead Resolution :	BP Precision 200 :	203 dpi = 8 Punkte / mm
	BP Precision 300 :	300 dpi = 11,8 Punkte / mm
	BP Precision 600 :	600 dpi = 23,6 Punkte / mm
Number of dots/line :	BP Precision 200 :	832
	BP Precision 300 :	1280
	BP Precision 600 :	1920
Print Speed :	BP Precision 200 :	2,3,4,5,6,7,8 ips (50,75,100,125,150,175,200 mm/s)
	BP Precision 300 :	2,3,4,5,6 ips (50,75,100,125,150 mm/s)
	BP Precision 600 :	2,3,4 ips (50,75,100 mm/s)
for peel-off mode :	print speed limited to maximum 4 ips (100mm/s) as standard	
Print Width :	BP Precision 200 :	up to 4.1 in (104 mm)
	BP Precision 300 :	up to 4.25 in (108.4 mm)
	BP Precision 600 :	up to 4.15 in (105.6 mm)

Media

Material :	Standard Labels and Cardboard / Tags Direct Thermal, Thermal Transfer and various Synthetics including: thermal transfer plaincoated papers, vinyl, Mylar, metalized paper, non-woven fabric, fine woven fabric, thermal visible light scannable paper, infrared scannable paper, thermal ticket/tag stock, thermally sensitive plastic stock.
Media Type :	die cut labels, continuous paper
Media Winding :	face-in or face-out on the roll
Supply roll Diameter :	up to 7.9 in (200 mm)
Core Diameter :	1 to 3 in (25.4-76 mm)
Material thickness :	0.003-0.01 in (0,07-0,25 mm)
Weight :	60-250 g/sqm

1. Product Description

Material Width :	4.7 in (120 mm)	
Media Width :	.5 to 4.6 in (12-116 mm)	
for peel-off mode :	1 to 4.6 in (25-116 mm)	
Media Height :	BP Precision 200/300:	.2 to 39 in (5-1000 mm)
	BP Precision 600 :	.2 to 9.8 in (5-250 mm)
for peel-off mode :	.5 to 7.9 in (12-200 mm)	
Internal Rewinder :	to rewind media or the liner in peel-off mode	
Core Diameter :	1.5 (38.1mm)	
Rewind Diameter :	up to 5.7 in (145 mm)	
Label side :	out	

Transfer Ribbon

Inkside :	in or out
Outer Diameter :	up to 3.1 in (80 mm)
Core Diameter :	1 in (25 mm)
Length :	up to 1650 in (500 m)
Width :	up to 4.5 in (114 mm)

Media Edge Sensor

Distance to paper edge :	.16-2.3 in (4-57,5 mm)
Material recognition :	Gap sensor ("see-through"), Bottom-reflective sensor for black marks

Electronics

Processor :	BP Precision 200/300:	32 Bit Motorola Coldfire / 64 MHz
	BP Precision 600:	32 Bit Motorola Coldfire / 144 MHz
Internal Memory (RAM) :	BP Precision 200/300:	8 MB
	BP Precision 600:	16 MB
Slot for memory card :	CompactFlash Type 1 up to 512 MB	
Real time clock :	Printout of time and date	
Control panel :	Navigator Pad with the active key illuminated indicating operating mode Lighted graphic LCD display LCD can be set to display in different languages	

Interfaces

Standard :	
serial :	RS-232 8 Bit; 1,200-230,400 Baud
parallel :	Centronics bi-directional (IEEE 1284 Nibble mode)
USB (Master) :	for keyboard / scanner / external control panel
peripheral connection :	for cutter / present sensor / peel-off adapter, pause adapter /
Optional :	
serial :	RS-422/485 8 Bit; 1,200-230,400 Baud
USB (Slave) :	for PC connection
Ethernet :	10/100 Base T
Twinax/Coax Converter :	for IBM connection

Contents of the Print Image

Text Fields :	max. 250
Graphic Elements :	max. 200
Bitmap Graphics :	max. 128 (100 several graphics in memory)
Barcode Fields :	max.100

Fonts

Available Fonts :	5 Bitmap fonts incl. OCR-A and OCR-B 3 scaleable fonts (TrueType™) internal Additional TrueType™ fonts may be downloaded
Character Sets :	Windows : 1250 bis 1257 DOS 437, 737, 775, 850, 852, 857, 862, 864, 866, 869 EBCDIC 500, ISO 8859-1 bis -10, ISO 8859-13 bis -16, Macintosh Roman, DEC MSC, KOI8-R, Win OEM 720, UTF-8
Font Size :	
Bitmap fonts :	Width and height .04 to .1 in (1 - 3 mm) Width and height are selectable up to 10.
Scaleable fonts :	Width and height .035 to 5 in (.9 - 128 mm) Width and height are individually changeable.
Font style :	reverse, bold, italic, underlined, outlined, grey, vertical
Font rotation :	
Bitmap fonts :	0°, 90°, 180°, 270°
Scaleable fonts :	360° in 1° increments

Graphics

Graphic elements :	line, box, circle, ellipse, fill-in segment, arrow
Graphic file types :	.PCX, .IMG, .BMP, .TIF, .GIF and .MAC Graphic files

1. Product Description

Barcodes

Lineare Codes :	Code 39, Code 93, Code 128 A,B,C, Codabar, EAN 8, EAN 13, EAN 128, EAN/UCC 128, EAN/UPC Anhang 2, EAN/UPC Anhang 5, FIM, HIBC, Interleaved 2/5, Ident-/Leitcode der Deutschen Post AG, Jan 8, Jan 13, MSI, Plessey, Postnet, RSS 14, UPC A, UPC E
2-D Codes :	Aztec, Codablock, Data Matrix, PDF417, Micro PDF, UPS Maxicode, QR-Code
	Bar code height, module width and ratio are variabe, with/without check digit, human readable character, start/stop character

Control / Test

Control :	Ribbon available Paper / fanfold available Printhead closed
Test options :	System test when powering on including a printhead test short status, status print, font list, device list, printhead profile, label profile, test grid, ASCII dump mode
Status messages :	Counter of the printed length, counter of the operating hours

Software

Windows driver :	95, 98, ME, 2000, XP, NT from Version 4.0

Others

Dimensions :	H: 10.8 in (274mm) W: 9.5 in (242mm) D: 17.6 in (446mm)
Weight :	20 lb. (9 kg)
Operating Voltage :	100-240 V A.C. / 50-60 Hz
Maximum Power Input :	250 W
Environment :	
Operation :	at 50° to 95° F (10 to 35°C) at a humidity of 30 to 85%
Transport :	at -13° to 158° F (-25 to +70°C) at a max. humidity of 95% non-condensing
Storage :	at 41° to 104° F (5 to 40 °C) at a humidity of 5 to 85%

Options

External Media Unwinder/Rewinder

For operating large print jobs, external unwinders and rewinders are available to handle big label rolls :

- Ext. Rewinder **ER1** (up to diam. 8.3in/210mm)
- Ext. Rewinder **ER4** (up to diam. 11.8in/300mm)
- Ext. Unwinder **EU4** (up to diam. 11.8in/300mm)

Present Sensors (for P-version printers only)

The Present Sensor **PS8** is a see-through sensor, which indicates the label in the peel-off position and stopp the print job. After removing of the label, the next one is printed. The Present Sensor **PS6** has additionally a peripheral interface to control the peel-off process by an external application.

Rewind Guide Plate (for P-version printers only)

The Rewind Guide Plate **RG4** offers to rewind small print jobs internally. The maximum rewind diameter depends on the size of the remaining media roll.

Cutter Unit

With the **CU4** installed, labels or continuous media may be cut when desired. Cutter options include a choice of: after each label, after a specific quantity of labels, or at the end of a print job. For cutter operation, the printer firmware will extend the label for cutting based on specified displacements, then automatically backfeed the label, so that after making a cut, the label roll will be repositioned and ready for printing the next label.
The cutter is powered directly by the printers peripheral connector.

Memory Card

The printer includes an option for using memory cards in order to permanently store graphics, fonts or whole label formats. The data can be downloaded via any of the printers data interfaces. CompactFlash Type 1 cards with a maximum capacity of 512 MB are accepted. Using a memory card, the printer can be operated **without** being connected to a computer which represents a great advantage regarding the flexibility.

External Keyboard

The keyboard connector allows you to connect your printer to an USB keyboard. This will allow you to input variable data to a format stored on a memory card.

Interface Extensions

The printer is equipped with a slot to connect an additional interface.
It is possible to install an **USB interface** or an **ethernet interface** allowing the printer to be connected to several different types of interfaces and networks.

Print Media

The **BP Precision** printers can be run in a direct thermal or thermal transfer mode.

For direct thermal mode, the label material must be specifically designed for this use. The printout is created directly on the paper, as the paper reacts with the heat of the printhead and results in the darkening of the material.

Driving the printer in thermal transfer mode requires standard paper labels and the addition of thermal transfer ribbons. The printout is created by heating the ribbon with the printhead, resulting in a transfer of color from the ribbon onto the labels.

The printers allow for regulating the required heat setting through the software, which offers a wide range of printing possibilities.

The **BP Precision** printers are able to print on labels and continuous media, with a maximum supply roll diameter of 7.9" (200 mm). The minimum core diameter is 1" (25.4 mm).

Top of form (label edge) detection is accomplished with a moveable photocell, which is driven by the internal processor of the printer. The photocell does an automatic measurement of the used material. No additional adjustments are required.

The following pages contain more detailed information and specifications which apply depending on the print method to be used.

For information of specific materials you may wish to use, check with your local distributor. Not every material is suitable for quality direct thermal or thermal transfer printing. The surface of the material is very often the main factor, but not the only factor determining suitability. There are many materials available for labeling and your local distributor can offer suggestions to meet your particular needs.

Print Media for Direct Thermal Printing

The material to be printed must comply with certain important specifications to ensure a quality print image and to avoid damage or extra wear to the printhead.

Using the label stock which we have tested and recommended ensures the best treatment of the printhead. In the event that your label stock will be supplied by another manufacturer, the following points should be noted with regard to the use of thermal paper:

1. The surface coating/quality must sufficiently cover the thermo-reactive coating to ensure that the printhead does not become damaged. If the surface coating is too thin, the printhead can become pitted due to microscopically small "explosions" resulting when the chemical reaction of the thermal coating takes place. The result is that the printhead can rapidly become damaged.

2. The surface of the label should be very smooth to avoid a "sandpaper" type effect on the printhead.

3. Choose label stock which can be printed with the lowest possible thermal value. The greater the thermal value required, the greater wear on the printhead. Additionally, when the thermal value is high, the time required for the printhead to heat up and cool down can have an adverse effect on the quality of print, especially when a fast print speed is desired.

Print Media for Thermal Transfer Printing

The thermal transfer process makes possible the use of many different materials for printing, such as normal paper, cardboard, polyester film, etc.

NOTICE !
The print results depend to a great degree on a suitable combination of label material and transfer ribbon. The label surface dictates which transfer ribbon will provide the best print results, and which ribbon cannot. An unsuitable match of label material to ribbon type can be responsible for an extremely poor print quality.

Your Dealer can give you expert advice as to which combination of materials will best meet your requirements. Your Dealer can also assist you by testing the different materials you may be considering for your labeling needs.

Label / Tag Media Specifications

Label and tag media to be used by the printer must conform to the following specifications:

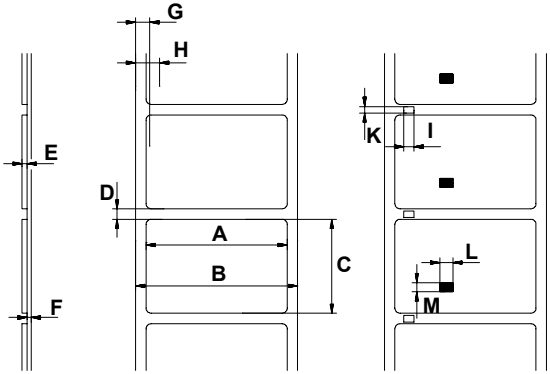


Fig. 1 Media Specifications

Item		BP Precision 200	BP Precision 300	BP Precision 600
A	Label width	.5 - 4.6 (12-116)		
	Peel-off mode	1 - 4.6 (25-116)		
B	Backing width	1 - 4.7 (25-120)		
C	Label length	.2 - 39 (5-1000)		.2 - 9.8 (5-250)
	Peel-off mode	.5 - 7.9 (12-200)		
D	Gap between labels	.08 - 39 (2-1000)		
E	Label thickness	.003 - .01 (0.07-0.25)		
F	Thickness of backing material	.003 - .01 (0.07-0.25)		
G	Distance of the first printing position from the edge of the backing paper	.08 (2)		
H	Distance of the label sensor from the edge of the backing paper	.16 - 2.3 (4-57.5)		
I	Width of the perforation mark	>.2 (>5)		
K	Height of the perforation mark	.08 - .4 (2-10)		
L	Width of the reflective mark (black)	>.2 (>5)		
M	Height of the reflective mark (black)	.08 - .4 (2-10)		

Table 1 Media values are displayed in inches (values in brackets are mm)

Transfer Ribbon

The choice of transfer ribbon plays an important role in the quality of print image that can be produced, and it also directly affects the longevity of the printhead.

CAUTION !
Poor quality transfer ribbon can lead to premature deterioration of the printhead !

The ribbon material must be as anti-static as possible. This is because the extremely thin surface coating on the printhead can be damaged by a build up of electrostatic charges. The temperature tolerance of the material must be extremely high in order to avoid the transfer ribbon melting directly onto the printhead. The temperature increase which results from the printing cycle must be dissipated over the label and the transfer ribbon. Poor quality transfer ribbon often has only a limited ability to dissipate the heat. This can contribute to overheating of the printhead, despite electronic protection against overheating
Poor quality transfer ribbon also tends to partially shed its ink coating, causing the printhead and sensors to accumulate dirt. In addition, with some transfer ribbons, the back coating can flake or smudge, leaving traces on the printhead. All of these effects contribute to lowering the print quality to below desired standards.
Numerous tests have been conducted with a very large number of different transfer ribbons and we recommend only ribbons supplied by reputable manufacturers. A variety of different transfer ribbons can sometimes be used for a particular type of label stock. The quality of print is determined by the correct combination of these materials.

NOTICE !
When choosing material, make sure the transfer ribbon is slightly wider than the width of the label backing.

The presence of transfer ribbon is sensed by the rotational movement control of the transfer ribbon unwinder, rather than with photocell sensors. As a result, ribbons that have a thinner coating or those with a colored coating can be used without problems.
The possiblity of printing labels up to the absolute end of the ribbon is restricted by the length of the uncoated "trailer", which attaches the end of the ribbon to the core.

NOTICE !
Make certain before purchasing transfer ribbon that the "trailer" (see above) is not more than 2.3in (60mm) long.

Software

There are several methods to create formats and to send them to the printer. Below, a short explanation of the most common methods is given.

Direct Programming

The printer is equipped with an internal command set. The command set is designed to program all functions of the printer. To create a label format, use any ASCII editor to combine the necessary commands. Save the commands to a file, then copy the file to the printer using the connected interface and HyperTerminal or the DOS COPY command.
Direct programming requires a minimum knowledge of programming logic. The printer commands are designed logically and structured clearly. However it is necessary to carry out several test prints when creating a label using the command set since no image of the label is displayed on the monitor.
The complete description of the command set and sample programs is available in the "Programming Guide".

Windows Printer Driver

Windows Printer drivers are available for the different Windows versions.

The printer can be operated from any Windows Application that supports Windows Printer drivers. The graphical user interface allows for easier creation of label formats. However, the functionality depends on the choosen application and how each product supports Windows Printer drivers. There could be restrictions depending on the application you are using. A help file is included with the drivers to explain the usage and limitations when using certain Windows applications.

Label Software

There are several Windows Applications that are designed to create labels. These programs are more suited to the requirements of label printing than standard Windows Applications. In some cases these programs use the Windows Printer Driver.

Some applications have integrated internal drivers to operate the BP Precision printers. These applications offer the best solution for creating and printing labels.

2. General Safety Instructions

CAUTION !

- The printer is built exclusively to print die-cut labels, continuous media, and similar materials as listed in Technical Specifications in Chapter 1.
- Connect the printer to an outlet with the correct voltage!
  The printer is configured for voltages of 100 to 240 V.
  Connect only to a power outlet with a **grounded** contact.
- The printer must only be connected to devices which have extra low voltage.
- Power must be OFF before plugging in any accessory, connecting to a computer and before performing any maintenance on the printer. Also turn the power off on all appliances before disconnecting from the printer.
- Do not expose the printer to any moisture, or use in damp or wet areas.
- The printer will operate with the cover open if necessary. This is not recommended, as it might allow debris to collect on the printhead surface. If the printer must be operated with the cover open, extra care must be taken to avoid allowing hair, jewelry, clothing, etc. near the moving parts.
- During the print process the printhead will become hot. Use extra caution when touching the printhead. Do not touch the printing surface of the printhead with you hand!
- Any adjustments or repairs which are not described in this manual, should only be carried out by an authorized service technician.

WARNING !
To avoid possible electric shock, do not open the backside cover!

3. Unpacking

Delivery Contents

Please inspect the printers packaging and contents immediately after receipt for possible damage during shipment.

NOTICE !
Be sure to preserve the original packaging for possible later shipment!

The shipping container will contain the following standard components:

- Thermal Transfer Printer
- Cardboard Core for the transfer ribbon rewinder
- Tear-off Plate (**Basic devices** only)
- Dispense Plate (**P-Versions** only)
- Power Cord
- Documentation

Removing the Securing Devices

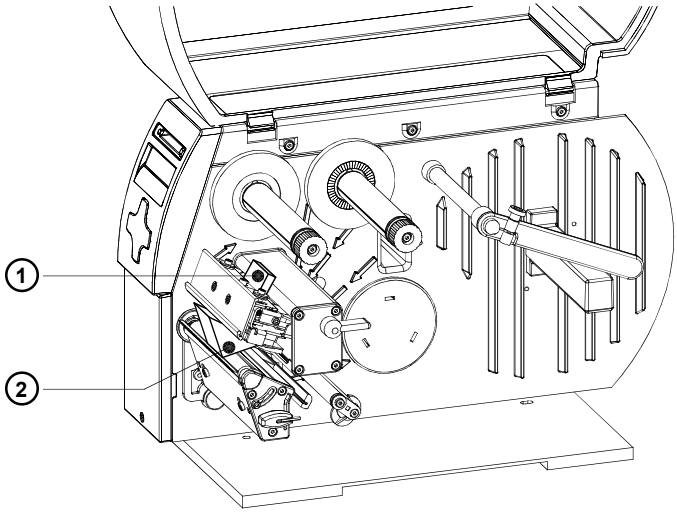


Fig. 3 Removing the securing devices

1. Place the printer on a solid flat surface.
2. Open the cover.
3. Remove the securing devices (**1, 2**).

4. Printer Component Location

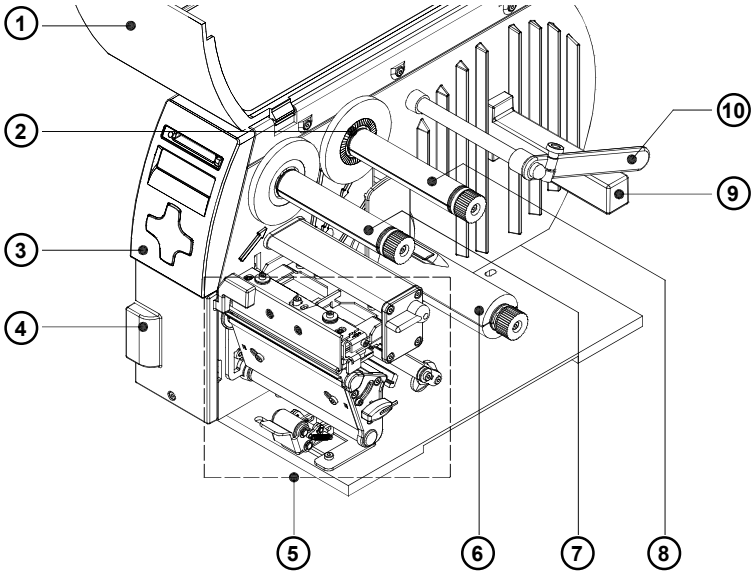


Fig. 4a General view

1 - Cover
2 - Warning label "End of Ribbon"
3 - Control panel
4 - Present sensor (Option for **P-Version**)
5 - Print mechanism
6 - Internal rewinder (**P- Versions** only)
7 - Ribbon take up hub
8 - Ribbon supply hub
9 - Media hub
10 - Media Retainer

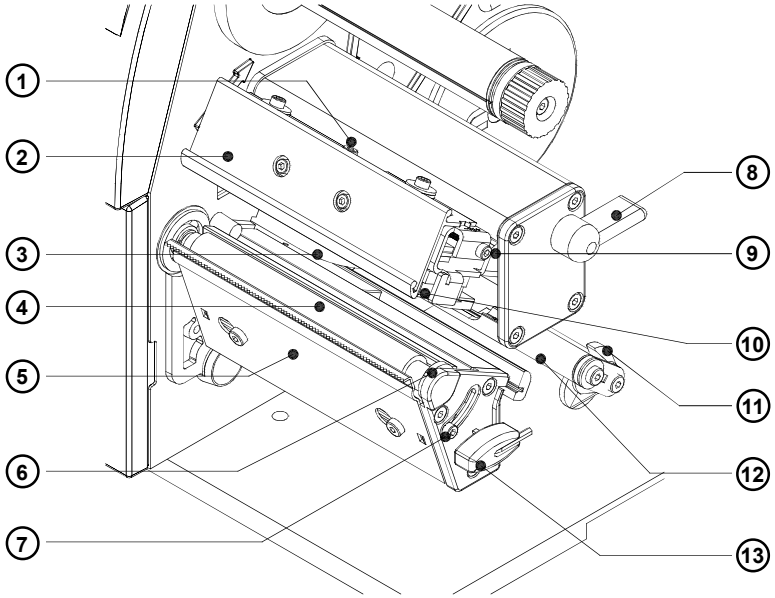


Fig. 4b Print mechanism Basic Devices with printhead open

1 - Printhead locking screw
2 - Ribbon shield
3 - Label edge sensor
4 - Media feed roller
5 - Tear-off plate
6 - Printhead support
7 - Screw to adjust the printhead support
8 - Printhead lever
9 - Screw to adjust the ribbon shield
10 - Thermal printhead
11 - Media guide
12 - Swing (**BP Precision 200/300**: Guide axle)
13 - Allen Key

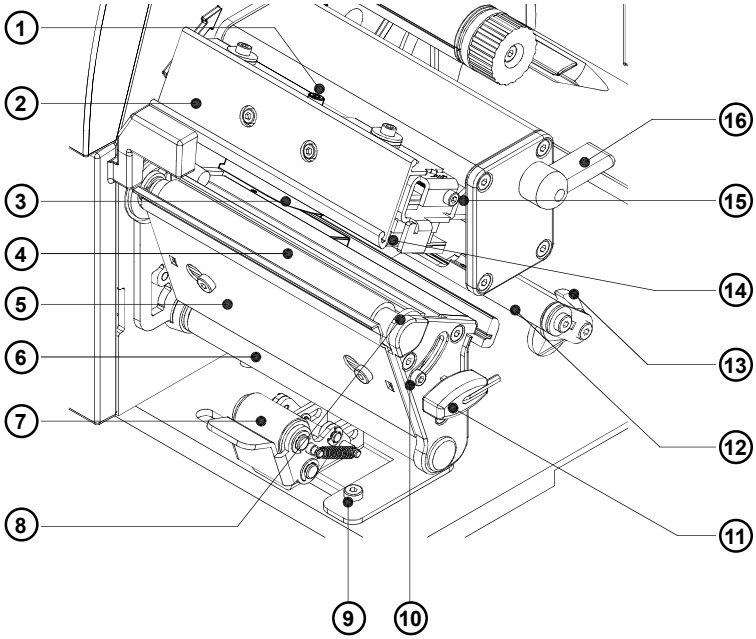
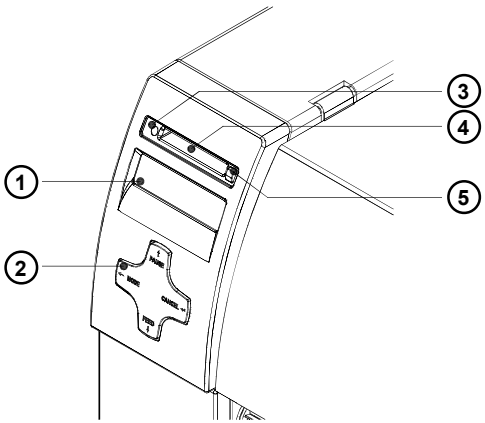


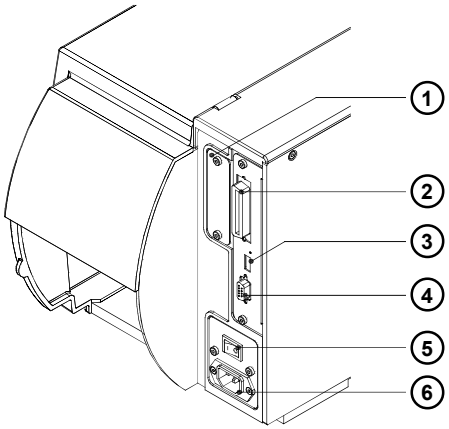
Fig. 4c Print mechanism P-Versions with printhead open

1 - Printhead locking screw
2 - Ribbon shield
3 - Label edge sensor
4 - Media feed roller
5 - Dispense plate
6 - Rewind assist roller
7 - Locking system
8 - Printhead support
9 - Screw for adjusting locking system
10 - Screw for adjusting printhead support
11 - Allen key
12 - Swing (**BP Precision 200P/300P**: Guide axle)
13 - Media guide
14 - Thermal printhead
15 - Screw to adjust the ribbon shield
16 - Printhead lever



1 - Display
2 - Navigator pad with keys
3 - Memory card LED
4 - Memory card slot
5 - Memory card ejection lever

Fig. 4d Control panel



1 - Slot for the additional interface card (Ethernet or USB-slave)
2 - Bi-directional parallel interface
3 - USB master interface for keyboard or scanner
4 - RS-232-interface
5 - Power switch
6 - Power supply connector

Fig. 4e Back view

5. Connecting the Printer

CAUTION !
Make sure the printer is located where the unit or the operator cannot come in contact with water. Otherwise it could cause damage to the printer.

Connection to Power Supply

The printer is equipped with a wide range power unit (100-240V~), so it is possible to use the printer both with a voltage of 230V~/50 Hz and with a voltage of 115V~/60 Hz without making changes to the printer.

CAUTION !
Make sure the power switch (1) is in position "O" (OFF) before connecting the printer to a power supply !

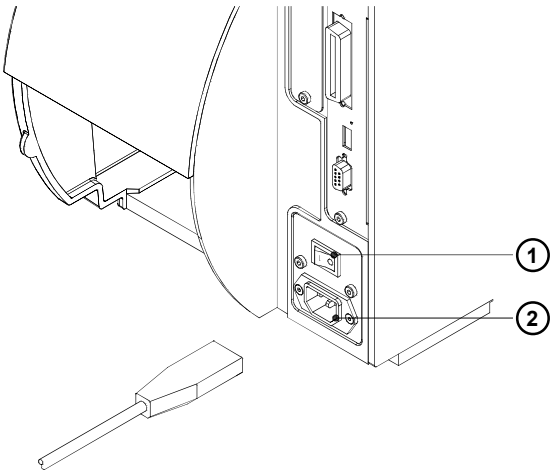


Fig. 5a Power supply

Insert the power cable supplied in the accessories carton into the power supply connector (**2**) and contact the cable to a grounded outlet.

Connection to a Computer

As standard, the printer is equipped with a bi-directional parallel interface (**3**) and a serial RS-232-interface with a 9 pin connector (**4**).

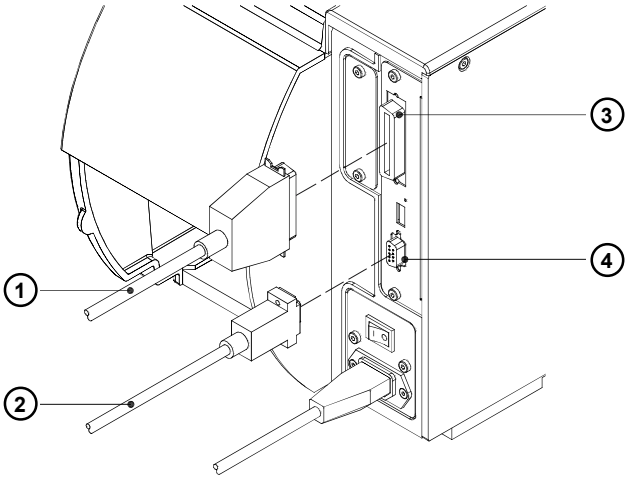


Fig. 5b Computer connection

For connection to the parallel interface use a suitable parallel interface cable (**1**).
Cables for the serial connection (**2**) are described in appendix B. You can also find descriptions of the pin assignments for the interface connectors

NOTICE !
For serial connection, make sure the serial interface RS-232 of the printer is correctly configured to the settings of your computer (see printer configuration section).

Connect the computer and the printer with a suitable cable and secure the cable connections with screws provided on the connectors.

CAUTION !
Make sure that all connected computers and their connecting cables are correctly grounded.

Information for the optional interfaces (Ethernet, USB) can be found in the documentation for the respective interface.

Switch on the Printer

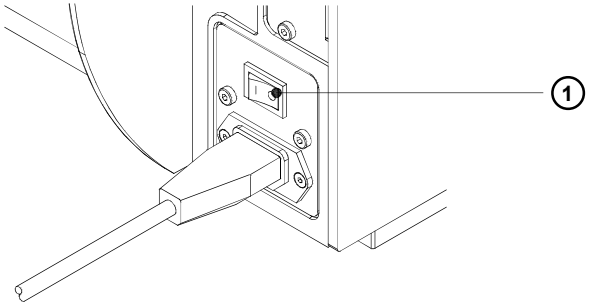


Fig. 5c Switch on the printer

After making all connections, power on the printer using the power switch (**1**).

The printer will perform a short system test, then display "ONLINE" on the front panel LCD.

If a hardware failure occurs during the system test, the symbol and a description of the failure will be displayed on the LCD. In this case the printer should be powered off and on again. If the failure re-occurs, call for service.

6. Control Panel

Use of the Control Panel

The control panel allows the operator the ability to control the operation of the printer in various ways.

Uses of the control panel :

- to control the current print job, e.g. to pause and continue or to cancel print jobs on demand.
- to set print parameters, for example the heat level, the print speed, the baud rate of the serial interface, the language or the time.
- to execute self test functions of the printer.
- to operate the printer using a memory card without having a computer connected.
- to carry out an update of the printer's firmware.

Several functions and settings can also be configured by sending printer commands from software or through direct programming.

The settings configured by the control panel are basic settings.
Parameters can be set on/off for all print jobs, for example "Transfer print on/off" or the setting can be set by software for single print jobs.

Parameters such as "Printhead position", which determines the position of the print image, can be set for all print jobs. Any setting that has both a front panel setting and software command, the values are totaled together for printing.
In the case of On/Off settings, the software commands will override the front panel setting.
The section "Printer Configuration" will indicate whether it is possible to change the settings of the front panel via software.

NOTICE !
Whenever possible, use the software command during print jobs to control the printer's settings.

Structure of the Control Panel

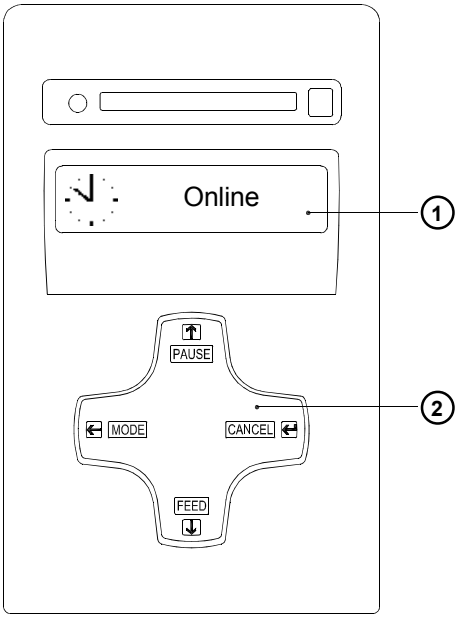


Fig. 6a Control Panel

The control panel consists of a graphic display (**1**) and the Navigator Pad (**2**) with four integrated keys.

The control panel display constantly provides the operator with realtime information concerning the current printer mode and label processing.

The function and operation of the keys depends on the current mode.
The available functions are marked by illuminating the valid symbols and text in the keys.

Functions of the Control Panel during Printing

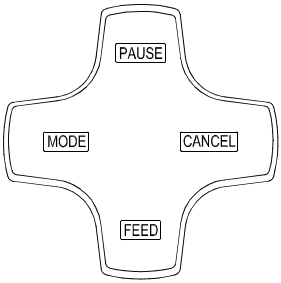


Fig. 6b Navigator Pad during Printing

During printing the keys on the Navigator Pad are illuminated to indicate what functions control the print jobs. The exact key functions in the different system modes are described below.
The text is not illuminated when the keys have no function in the current mode.

System Mode ONLINE

The printer is switched ON and ready to receive data.
The display shows the time and the word "Online".

During the transfer of data a rotating symbol appears on the display.

When saving data on the PC card the symbol appears on the display.

Key	Description	Function
MODE	on	Switches to OFFLINE mode.
FEED	on	Performs a label feed.
PAUSE	(on)	Repeats the print of the last label, after the previous print job has been completed. (Only when setup parameter "Pause reprint" is on.)
CANCEL	(on)	Clears internal memory of the previous print job. "Pause reprint" is no longer available.

System Mode PRINT

The printer is currently processing an active print job.
In this mode, the transfer of data is possible. New print jobs will be carried out immediately following the completion of the previous job. The display shows the message "Printing label" and the current number of printed labels.

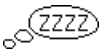
Key	Description	Function
PAUSE	on	Interrupts the current print job
CANCEL	on	Short press - cancels the current print job Long press - cancels the current print job and deletes all jobs contained in the internal memory

System Mode PAUSE

The printing process is temporarily interrupted by the operator.
The display shows "Pause" and the symbol appears.

Key	Description	Function
PAUSE	on	Continues the print job
CANCEL	on	Short press - cancels the current print job Long press - cancels the current print job and deletes all jobs contained in the internal memory

System Mode POWERSAVE

If the printer does not receive a print job or the front panel has not been accessed for a period of time, the printer will switch into a powersave mode. During powersave mode, certain functions such as the background lighting of the display are powered off. The display shows 

. The illumination of the keys is switched off.

To leave this mode press any key or send a print job.

System Mode FAULT-CORRECTABLE

The printer has encountered a fault during printing which is easily corrected by the operator (e.g. "Out of paper"). Once the fault has been corrected, the printing process may be continued.

The symbol

appears on the display. Additionally, the type of fault and the total of the remaining labels is also displayed.

Key	Description	Function
PAUSE	flashes	Continues current print job after fault correction
CANCEL	on	Short press - cancels the current print job Long press - cancels the current print job and deletes all jobs contained in the internal memory

System Mode FAULT-IRRECOVERABLE

During printing, a fault has occured which cannot be cleared by the operator without canceling the current print job.

The symbol

appears on the display and the type of the fault is displayed.

Key	Description	Function
CANCEL	flashes	Short press - cancels the current print job Long press - cancels the current print job and deletes all jobs contained in the internal memory

Functions of the Control Panel in the Offline Menu

The Offline Menu contains options to set machine and print parameters, to enter test and service functions as well to operate with the memory card.

To enter this mode press the MODE key while in the ONLINE mode. If a memory card is installed the display shows "Memory card". Otherwise "Test" will be displayed.

Online		[Memory card]	Label from card Print directory Copy memory card * Format card * ASCII dump (Card)
		Test	Short status Status print Font list Device list Printhead profile ASCII Dump Mode Test grid Label profile
		Setup *	Local settings Machine parameter Print parameter Interfaces Security
		Service	Firmware upd. *
Menus and options marked with * can be protected by a PIN from unauthorized access. Functions marked with [...] are only accessible, if an optional device has been installed.			

Table 6 Structure of the Offline Menu

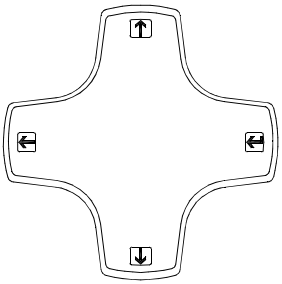


Fig. 6c Navigator Pad in the Offline Menu

After switching from the "Online" mode into the Offline Menu the function of the keys are changed. Now the keys of the Navigator Pad have the function of cursor keys.

Key	Function
↑	- Move up in the menu - Increase numeric values
↓	- Move down in the menu - Decrease numeric values
↵	- Switch to a secondary menu - Move the cursor to the right during numeric settings - Finish a setting with confirmation of the selected settings - Start of a selected test or service function
←	- Return from a secondary menu - Move the cursor to the left during numeric settings - Finish a setting with rejecting the selected settings - At the start of the menu, return to the system mode "Online"

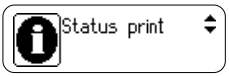


Fig. 6d Display during selection of a function

During selection of the test and service functions the display shows the selected menu. A graphic symbol accompanies the text.

In the "Setup" menu, the display shows the selected parameter and the current setting of the parameter.
If the symbol appears in the upper line, the symbol indicates that it is possible to switch between several parameters by pressing the key and the key.

Fig. 6e Display during selection of a parameter

To change the current setting press the key. Then the symbol is shown in the bottom line of the display indicating that it is possible to change the setting of the parameter by pressing the key and the key.

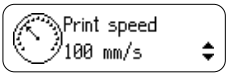


Fig. 6f Display during change of a parameter

7. Media Loading

General Information

1. Pay attention to the specifications of the material indicated in chapter 1 .
2. When using the printer for the first time or using label media with a different width, make sure to adjust the printhead support as well as the position of the label edge sensor.
3. There is a warning label (**1**) on the ribbon supply hub which will be visible if the material is getting low. When that warning label is visible, prepare to replace the ribbon material soon.
4. If you do not use the printer for an extended period of time, lift the printhead to avoid possible flattening of the print roller.
5. If you want to move or ship the printer to another location, remove the media and the ribbon from the printer.

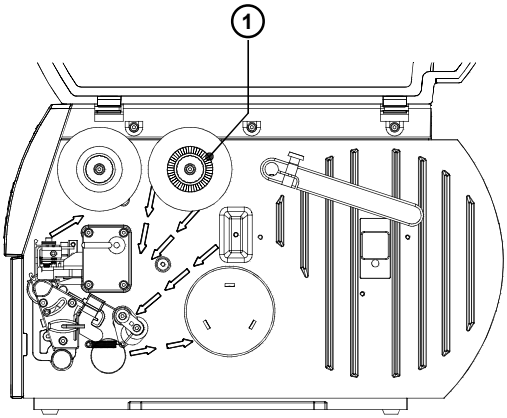


Fig. 7a Warning label

Preparation for Rewind Mode

The **P-version** printers are prepared for the dispense mode an the tear-off mode. After mounting the optional rewind guide plate (**1**) the printers also may be operated in rewind mode.

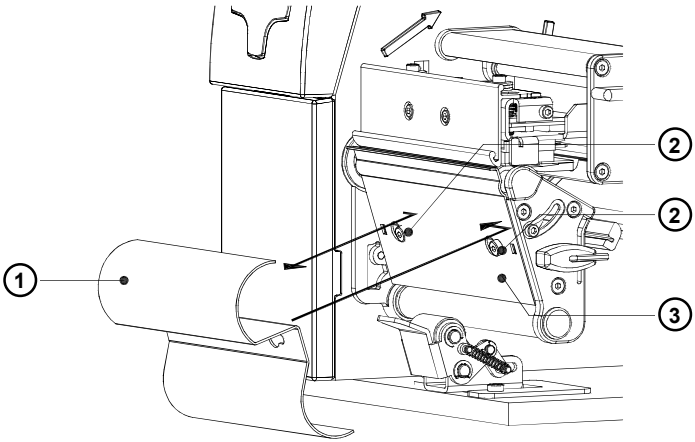


Fig. 7b Exchange Dispense Plate / Rewind Guide Plate

1. Open the cover.
2. Loosen the two screws (**2**).
3. Slide the dispense plate (**3**) to the right as far as possible to remove the plate from the printer.
4. Place the slotted holes on the rewind guide plate (**1**) over the screws (**2**) on the front of the printer and slide the plate to the left until it stops.
5. Tighten the two screws (**2**).

Loading Labels

Loading Labels from Roll

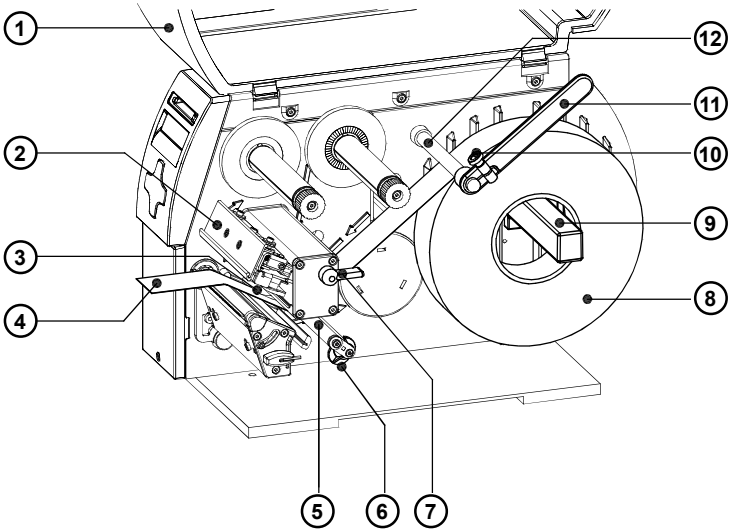


Fig. 7c Label Loading in Tear-off Mode

1. Open the cover (**1**).
2. Loosen the knurled screw (**10**), swing the media retainer (**11**) upwards and slide it out as far as possible.
   If you are using material with the same width as the previous material, just swing the media retainer (**11**) upwards.
3. Place the media roll (**8**) onto the media hub (**9**) and unwind a strip of media (**4**) from the roll. When operating in the rewind or peel-off mode make sure that the strip is long enough to reach the internal rewinder by guiding the strip through the whole print mechanism and underneath of it. Make sure that the labels between the media hub and the print mechanism are facing up. Slide the roll onto the media hub (**9**) until its stops.

4. Swing the media retainer (**11**) downwards until it touches the media hub (**9**). Push the media retainer against the supply role until it rests against the label media. Tighten the knurled screw (**10**).
5. Raise the printhead assembly (**2**) by rotating the lever (**7**) clockwise until it stops.
6. Slide the media guide ring (**6**) outward, allowing enough clearance for the label stock's width when loaded.
7. Slide the media strip underneath the swing (**5 /BP Precision 200/300**: axle) and through the adjustable photocell assembly (**3**) until it comes out of the front of the printer. If you are using labels that are wound-in, please make sure that you slide the media strip over the internal rewind hub (**13**). In figure 7d the feed path for labels wound-out is represented by a solid line, and the feed path for wound-in labels is represented by a broken line.

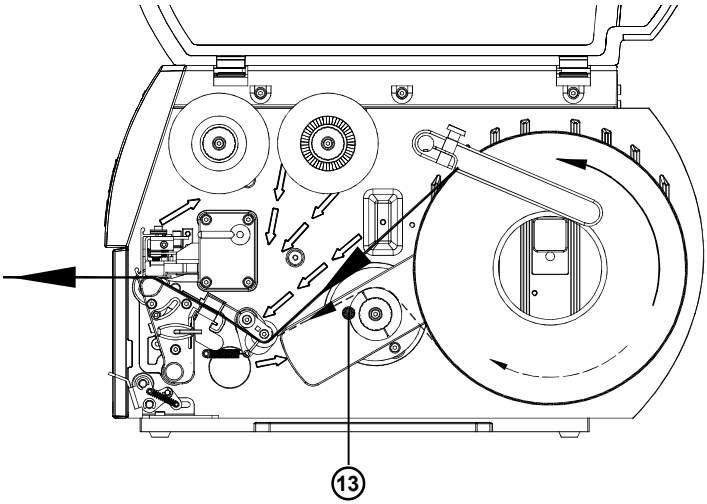


Fig. 7d Feed path in Tear-off Mode

8. Slide the media guide ring (**6**) inward until it lightly touches the side of the media strip.

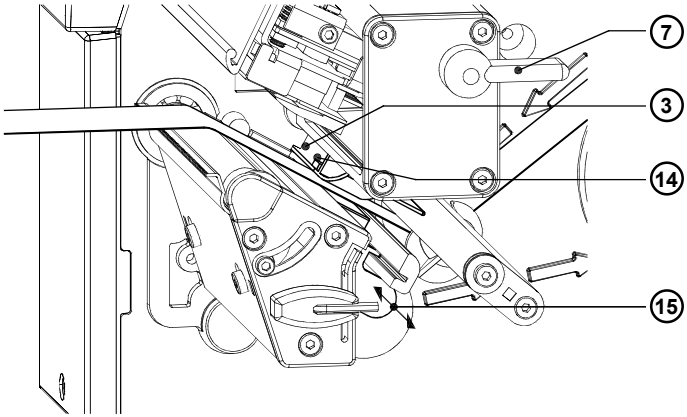


Fig. 7e Adjustment of the Label Edge Sensor

9. To accommodate a variety of print jobs, the position of the label edge sensor (**3**) can be adjusted until it is at the proper sensing position. It is important to ensure that the sensor (**14**) itself (the position of which is indicated by a notch in the sensor housing) is positioned so that the space between the labels can be recognized by the photocell. In the case of labels which have an unconventional shape (ie. not square or rectangular), the photo cell should be positioned at the leading edge of the label. Adjustment of the sensor is performed by sliding the handle (**15**) in and out.

10. Lower the printhead by rotating the lever (**7**) counter-clockwise until it locks.

11. When the printer is operated in peel-off mode continue with point 12. When the printer is operated in rewind mode continue with point 17.

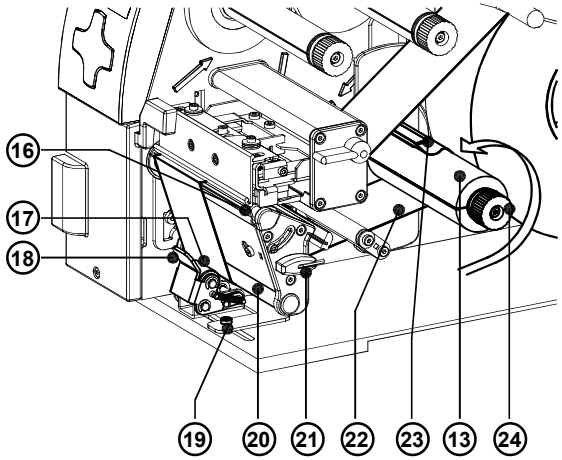


Fig. 7f Loading Labels from Roll in Peel-off mode

12. For peel-off mode swing the locking system (**18**) away from the rewind assist roller (**20**).

13. Remove all labels from the media strip hangig out of the printer. Then, slide the strip (**22**) around the dispense plate (**16**) to the internal rewind hub (**13**) as shown in figure 7f. Slide the strip under the clamps (**23**) that are located on the internal rewind hub (**13**). Hold the internal rewind hub (**13**) and rotate the nut (**24**) counter-clockwise until it is tight. The media strip will now be fastened to the internal rewind hub (**13**). Rotate the internal rewind hub (**13**) counter-clockwise to tighten the media strip.

14. Loosen the screw (**19**) using the Allen key (**21**).
    Align the locking system (**18**) including the pinch roller (**17**) by sliding it sidewards. The alignment is correct if the pinch roller (**17**) is placed in the middle of the label strip.

15. Swing the locking system (**18**) to the rewind assist roller (**20**) and tighten the screw (**19**).

16. For further informationen about operating in the peel-off mode see appendix A.

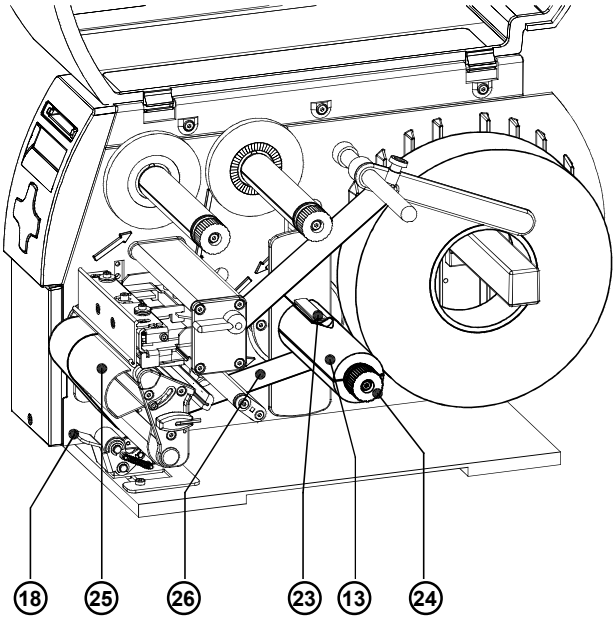


Fig. 7g Loading Labels from Roll in Rewind Mode

17. For rewind mode, the rewind guide plate (**25**) must be mounted.

18. Open the locking system (**18**)

19. Remove the labels from the first 4 in (100mm) of the label strip. Then, slide the media strip (**26**) around the rewind guide plate (**25**) to the internal rewind hub (**13**) as shown in figure 7g.

20. Slide the strip under the clamps (**23**) that are located on the internal rewind hub (**13**). Hold the internal rewind hub (**13**) and rotate the nut (**24**) counter-clockwise until it is tight. The media strip will now be fastened to the internal rewind hub (**13**).

21. Rotate the internal rewind hub (**13**) counter-clockwise to tighten the media strip.

Adjustment of the Printhead Support

When printing narrow label stock (width less than 60% of the maximum print width), it is possible that the printhead will come into direct contact with the printing roller in the area where there is no media.

CAUTION !
The printhead touching the printing roller could lead to premature failure on the printhead or the print roller!

This can also cause the printhead to be at a slight angle to the media, leading to a variation in the darkness of the print across the label.
This fault can be corrected by adjusting the printhead support :

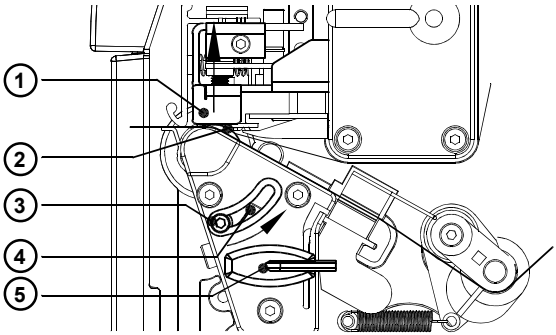


Fig. 7h Adjustment of the Printhead Support

1. The current position of the printhead support (**2**) is shown by the position of the screw (**3**) in the elongated hole (**4**).
2. For wide media the screw position shown in figure 7h is recommended. In this position the printhead support (**2**) is not used.
3. For narrow media, it is necessary to adjust the printhead support. In this case insert a second strip of a label at the outer side of the print roller and close the printhead. Loosen the screw (**3**) using the Allen key (**5**) and slide it slowly in the arrow direction until the printhead support (**2**) touches the printhead mounting (**1**).
4. Tighten the screw (**3**).
5. Remove the second label strip.

NOTICE !
Incorrect adjustments of the printhead support may cause wrinkles in the transfer ribbon.

Loading Fanfold Labels

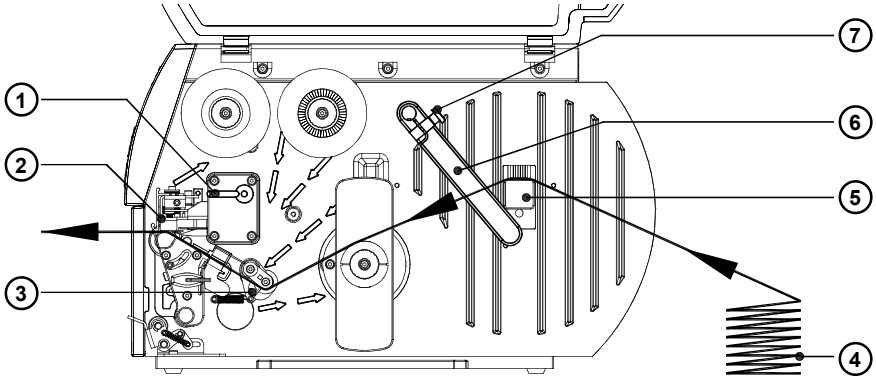


Fig. 7i Loading Fanfold Labels

1. Open the cover.
2. Loosen the knurled screw (**7**) and slide the media guide (**6**) to its outermost position. Rotate the media guide (**6**) downwards past the media retainer (**5**).
3. Place the stack of media (**4**) behind the printer. Make sure the labels on the media strip are facing up.
4. To raise the printhead assembly (**2**), rotate the lever (**1**) clockwise until it stops.
5. Slide the media guide ring (**3**) outward, allowing enough clearance for the media's width when loaded.
6. Slide the media strip through the printer as shown in figure 7i.
7. Adjust the label edge sensor so, that the sensor can recognize the space between the labels respectively the reflective or the perforation mark.
8. Slide the media guide (**6**) inward until it lightly touches the side of the media strip. Rotate the media guide (**6**) upwards against the media retainer (**5**) and tighten the knurled screw (**7**).

9. Slide the media guide ring (**3**) inward until it lightly touches the side of the media strip.

10. Lower the printhead by rotating the lever (**1**) counter-clockwise until it stops.

NOTICE !
When printing narrow label stock please activate the printhead support as described in the previous chapter !

Loading Transfer Ribbon

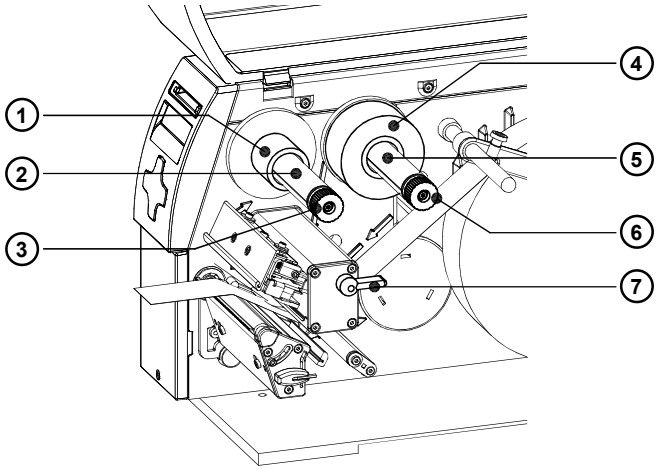


Fig. 7k Loading Transfer Ribbon

NOTICE !
For direct thermal printing no transfer ribbon is needed !

1. Rotate the printhead lever (**7**) clockwise until it stops to raise the printhead.

2. Slide the roll of transfer ribbon (**4**) as far as possible onto the ribbon supply hub (**5**).

NOTICE !
Note which side of the transfer ribbon is coated with ink! The inked side is generally the dull side of the transfer ribbon. When the ribbon is inserted, the inked side must not be placed in contact with the printhead! In figure 7l the solid line represents ribbon with ink on the inner side, and the broken line represents ribbon with ink on the outer side.

3. Rotate the knurled knob (**6**) counter-clockwise to clamp the roll of transfer ribbon (**4**) onto the ribbon supply hub (**5**).

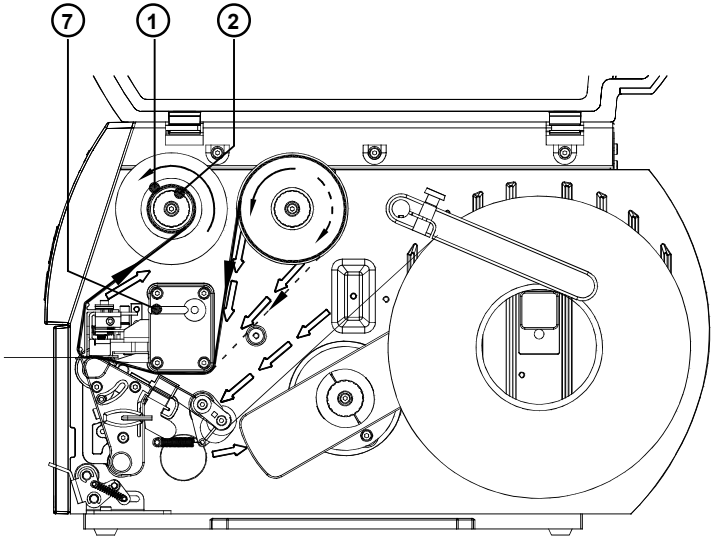


Fig. 7l Path of Transfer Ribbon

4. Slide a cardboard core (**1**) onto the ribbon take up hub (**2**). Clamp the core by rotating the knurled knob (**3**) counter-clockwise.

5. Feed the transfer ribbon along the path as shown in figure 7l and attach it to the cardboard core (**1**) using a piece of tape or a label.

6. Turn the ribbon take up hub (**2**) counter-clockwise until the ribbon is taut and without any wrinkles.

7. Rotate the printhead lever (**7**) counter-clockwise until it stops, thereby locking the printhead into position.

Adjustment of the Transfer Ribbon

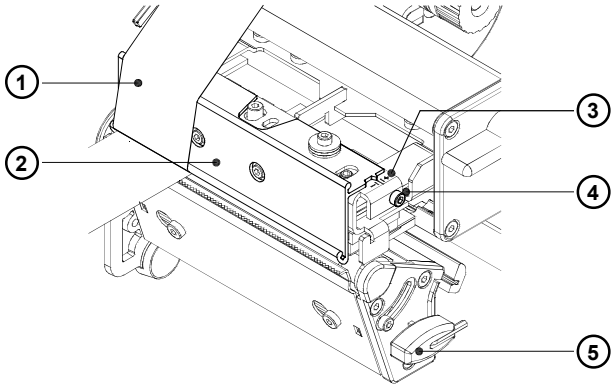


Fig. 7m Adjustment of the Transfer Ribbon

In the event that wrinkles appear in the transfer ribbon (**1**), which cause an inconsistent print image, the transfer ribbon shield (**2**) can be adjusted to remove the wrinkles. The adjustment should be done during the printing process.

1. The current position is visible on the scale (**3**).

2. To change the position, rotate the screw (**4**) using the Allen key (**5**). Rotating it in the direction of "+" will tighten the transfer ribbon the inner edge of the transfer ribbon. Rotating it in the direction of "-" will tighten the outer edge of the tranfer ribbon.

   To eliminate the wrinkles, tighten the side where the wrinkles are originating.

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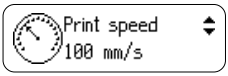
8. Printer Configuration

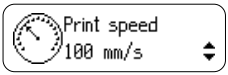
Overview

There are a variety of parameters that can be set to configure the printer to specific requirements in the "Setup" menu of the Offline Menu.
The setup should be performed when operating the printer for the first time and also when basic changes need to be carried out. In most cases however, simple changes such as heat setting adjustments, using different media will be made with software settings.
The "Setup" menu can be protected from unauthorized access by using a code number (PIN).

1. Switch to the Offline Menu by pressing the MODE key.
2. Continue to press the ↑ key or the ↓ key until you reach the "Setup" menu. Press the ↵ key.
3. If the "Setup" menu is protected by a PIN the display will show "PIN: 0000". You will need to enter the correct PIN before you can continue. The numbers of the PIN can be changed by using the ↑ key and the ↓ key. The position to be changed will be flashing on the display. Press the ↵ key to move to the next number. If the correct number is entered, the "Setup" menu is displayed.
4. The parameters are arranged in a tree like structure. Pressing the ↑ key as well as the ↓ key will scroll between the secondary menus. By pressing the ↵ key, the selected secondary menu will be chosen.
5. If a parameter is selected, the display shows the actual value underneath the parameter. On the top line the symbol ▲▼ is shown. This symbol indicates that it is possible to switch between the parameter choices by pressing the ↑ key and the ↓ key.

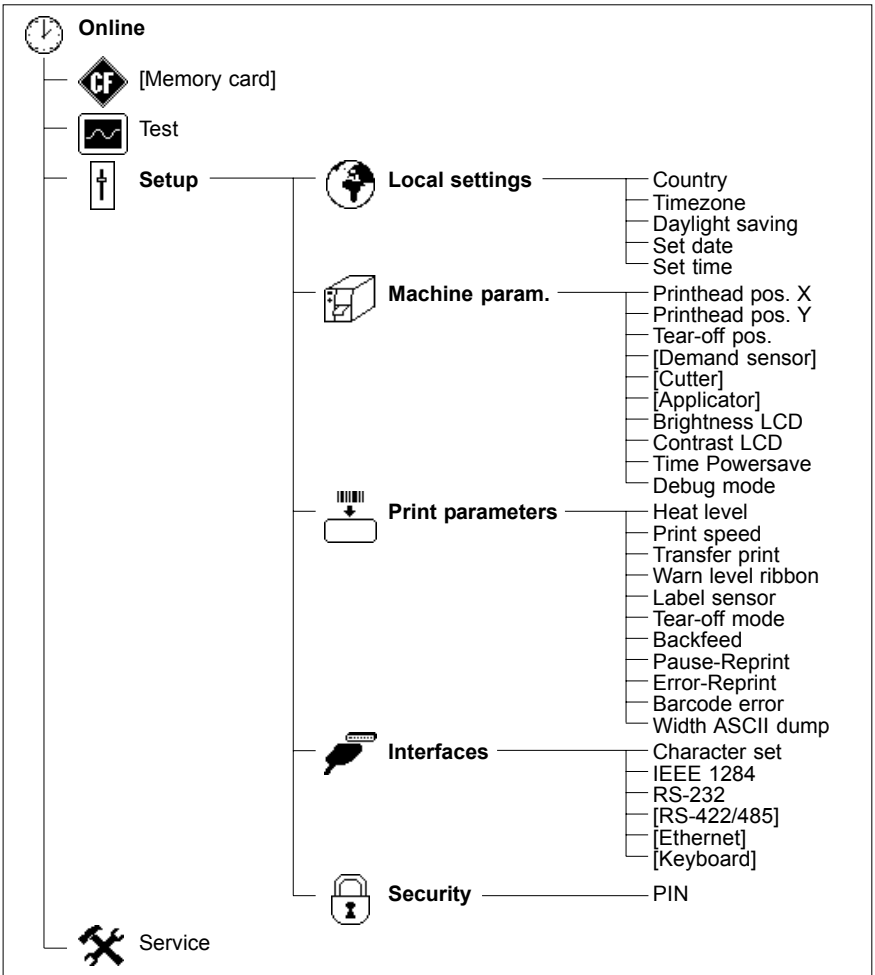


6. To change the current setting press the ↵ key.
Then the symbol ▲▼ is shown in the lower line of the display and it indicates that it is possible to change the setting of the parameter by pressing the ↑ key and the ↓ key.



7. Press the ↵ key to confirm the change. To cancel the change press the ↵ key. In both cases the symbol ▲▼ appears on the top line again.

8. Press the ← key several times if necessary to return to the "Setup" menu or to "Online" mode.



The "Setup" menu can be protected from unauthorized access by using a PIN.
[...] The parameters in the brackets are only accessible after installing an optional device

Table 8a Structure of the "Setup" Menu under the Offline-Menu

Local Settings

1. Switch from the "Online" mode to the offline-menu by pressing the MODE key.
2. Select the "Setup" menu.
3. Select the "Local settings" menu.

Setup

Local settings

Parameter	Meaning	Selection
Country	Set the display language and the date and time format for the country Default Setting: **USA**	Belgie, België, **7n_XUd]s**, Ceska republika, Danmark, Deutschland, Ελλας, Espana, Farsi, France, Italia, Lietuva, **AU^ZYba]¨U**, Magyarország, Nederlands, Norge, Polska, Portugal, **Ebee]s**, Schweiz, South Africa, Suisse, Suomi, Sverige, Türkiye, United Kingdom, USA
Time zone	Set the Time zone using UTC (Universal Time Coordinated) Default : **UTC +1**	UTC +12 ... UTC -10
Daylight saving	Select the method of daylight savings adjustment Default : **USA**	EU USA Off
Set date	Set the printer's date Default : **current**	31.12.2069 ... 01.01.1970
Set time	Set the printer's time Default : **current**	23:59:59 ... 00:00:00

Table 8b Overview of the "Local settings" Menu

Country

The "Country" parameter allows the setting of the LCD display language, which also defines the date and time format used for the printer display as well as for printing. The formats for time and date can be configured with software, but will not be saved permanently.

Time zone

UTC (Universal Time Coordinated) describes the international time base used on the web. To adjust the printer to the local time, set the parameter time zone in relation to the UTC. The selection contains all valid time zones of the world. Information regarding the correct time zone for UTC can be obtained from the web.

Daylight saving

Using this parameter you can select the valid daylight savings regulation. The time will automatically change on the correct days to adjust for daylight savings.

Set date

Using this parameter you can change the date in the printer's internal clock. The order of data to be changed (day, month, year) is independent from the format of the date. The field to be changed will be flashing on the display. When printed, the current date is given in the format selected based on the "Country" parameter. It is possible to change the date with software, but the change will not be saved permanently.

Set time

Using this parameter you can set the correct time in the internal clock manually.
The order of data to be changed is hour, minute, second. The field to be changed will be flashing on the display. If the optional ethernet-interface is installed, it is possible to synchronize the time with the web automatically. When printed, the current time is given in the format selected based on the "Country" parameter. It is possible to change the time with software, but the change will not be saved permanently.

Machine Parameters

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Select the "Setup" menu.
3. Select the "Machine parameters" menu.

Setup

Machine parameters

Parameter	Meaning	Selection
Printhead pos. X	Shift the print image on the label left to right. Default : **0.0 mm**	9,9 ... 0,0
Printhead pos. Y	Shift the print image on the label top to bottom. Default : **0.0 mm**	+9,9 ... -9,9
Tear-off pos.	Shift the tear-off position Default : **0.0 mm**	+9,9 ... -9,9
Demand sensor (only displayed when the optional Present Sensor is installed)		
Peel position	Shift the position of the dispensed label relative to the dispense plate Default : **0.0 mm**	+9,9 ... -9,9
Backfeed delay	Delay time between removing the label from the peel position and the backfeed of the label Default : **250 ms**	500 ms ... 0 ms in 50 ms increments
Limit peel-off spd.	Limitation of the print speed in the peel-off mode to 100 mm/s Default : **On**	On Off

Table 8c Overview of the "Machine parameters" Menu

Parameter	Meaning	Selection
Cutter (Only displayed if the cutter is attached)		
Applicator (Only displayed if the optional applicator is attached)		
Brightness LCD	Sets the brightness of the display Default : **8**	1..12
Contrast LCD	Sets the contrast of the display Default : **8**	6..11
Time Powersave	Amount of time before switching to powersave mode Default : **10 min**	60 min ... 0 min
Debug mode	Activates the debug mode Default : **Off**	On Off

Table 8c Overview of the "Machine parameters" Menu (continuation)

Printhead position X

Using this setting will shift the entire print image to the left on the label. This parameter should only be altered if you are printing the same format on several printers, and the printed image is not consistent on each printer.

NOTICE !
The value of Printhead position X cannot be greater than the difference of the printhead width and the defined label width in software. A value greater than the difference will be ignored and the actual difference will be used in place. For example, if the printhead width is 104mm and the label width defined in software is 100mm, the printer will only accept a value of 4mm or less for printhead position X. If Printhead position X is set for 6mm, the printer will only shift the label 4mm.

The Printhead position X value to be changed will be flashing on the display.

It is possible to adjust the value for individual jobs using software. The front panel values and software command values will be totaled together for printing.

Printhead position Y

Using this setting will shift the entire print image up or down the label. This parameter should only be altered if you are printing the same format on several printers, and the printed image is not consistent on each printer.

NOTICE !
Changing the Printhead position value Y also effects the peel position and cut position as well. It will be necessary to readjust the values for the peel and cut positions using the previous value +/- the printhead position value.

The Printhead position Y value to be changed will be flashing on the display. It is possible to adjust the value for individual jobs using software. The front panel values and software command values will be totaled together for printing.

Tear-off position

When the "Tear-off mode" (see chapter "Print parameters") is active, an additional feed forward will take place after completion of the print job. This additional feed makes it possible to tear off the last label at the tear-off plate. Using the setting "Tear-off position" the length of the additional feed can be adjusted.

Demand sensor - Peel position

This parameter allows for adjustment of the presentation position of the printed label on the dispense plate.
Peel position with the initial offset value of “0“ causes the printed label to be peeled off from the liner leaving approximately a .1“ (2mm) wide strip of the label still adhering to the liner. The amount of label left adhering to the liner can be altered with this parameter, using an offset in the range from -9.9mm to +9.9mm. Positive offset values cause more of the label surface to protrude past the dispense plate.
The Peel position value to be changed will be flashing on the display.
The offset values from “Peel position“ and from software are added together for execution. The software value does not replace the “Peel position“ value, but temporarily adjusts it for the current job.

Demand sensor - Backfeed delay

The "Backfeed delay" adjustment allows you to input an amount of time in milliseconds between when the label is removed from the peel edge and when the backfeed is executed. Using "Backfeed delay" should prevent labels from becoming jammed between the printhead and print roller when the liner is fed back too quickly.

Demand sensor - Limit peel-off spd.

This parameter allows to limit the print speed in peel-off mode to 4 ips (100mm/s).
When a printer is delivered, the maximum print speed in peel-off mode is limited to 4 ips (100mm/s). Even if the print speed for the peel-off mode is set higher in the software, the print job will be carried out with a speed of 4 ips (100mm/s). This limitation guarantees correct operation in peel-off mode when using maximum supply rolls (diameter 7.9 in (200mm), width 4.7 in (120mm)). When using smaller supply rolls it is possible to operate with higher speed. For that purpose the speed limitation must be switched off. Then the print speed can be set on all speeds up to 8 ips (200mm/s) for **BP Precision 200P** or 6 ips (150mm/s) for **BP Precision 300P**.

CAUTION !
When operating the BP Precision 200P/300P in peel-off mode with higher speed it is strongly recommended to carry out some tests beforehand by using appropriate rolls with maximum diameter !

The speed limitation in the peel-off mode does not affect any other operation modes like tear-off mode, cut mode or external rewinding.

Cutter

When the optional cutter is attached, the "Cutter" menu appears in the "Machine parameters" menu.
The menu contains all of the parameters for the cut function.
Detailed information is available in the cutter documentation.

Applicator

When an optional applicator is attached, the "Applicator" menu appears in the "Machine parameters" menu.
The menu contains all of the parameters for the applicator function.
Detailed information is available in the applicator documentation.

Brightness LCD

This parameter adjusts the level of brightness for the background on the display.

Contrast LCD

This parameter adjusts the level of contrast to improve readability on the display.

Time Powersave

If the printer does not receive a print job or the front panel has not been accessed for a period of time, the printer will switch into a powersave mode. During powersave mode, certain functions such as the background lighting of the display are powered off until the next operation is carried out.
This parameter defines the amount of time the printer will wait before entering powersave mode after the last operation.

Debug mode

The "Debug mode" is a tool for the firmware programmer.
It will assist in recognizing faults and their possible sources beyond standard error messages.

Print Parameters

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Select the "Setup" menu.
3. Select the "Print parameters" menu.

Setup

Print Parameters

Parameter	Meaning	Selection
Heat level	Basic adjustment of the heat intensity Default : **0**	-20 ... +10
Print speed	Basic adjustment of the print speed Default : **100 mm/s**	**BP Precision 200:** 50-200 mm/s **BP Precision 300:** 50-150 mm/s **BP Precision 600:** 50-100 mm/s in steps of 25mm/s
Transfer print	Basic selection of thermal transfer mode / direct thermal mode Default : **On**	On Off

Table 8d Overview of the "Print parameters" Menu

Parameter	Meaning	Selection
Warn level ribbon	Setting the threshold diameter for the warning message "ribbon end" Default : **Off**	Off 32 ... 74 mm
Label sensor	Method of label sensing Default : **Gap sensor**	Gap sensor Bottom reflect Endless media
Tear-off mode	Activating a small feed to the tear plate at the end of a print job Default : **Off**	On Off
Backfeed	Method of backfeed when using peel-off mode or the cut mode Default : **smart**	smart always
Pause reprint	Allows you to print additional labels after finishing a print job by pressing the PAUSE key Default : **On**	On Off
Error - Reprint	Selection of automatically reprinting a label after a correctable error has been fixed. Default : **On**	On Off
Barcode error	Selection, if the printer should handle invalid barcode data as errors Default : **On**	On Off
Width ASCII dump	Setting the print width for ASCII dump mode Default : **Automatic**	Automatic, 50mm to max. print width in steps of 5mm

Table 8d Overview of the "Print parameters" Menu (continuation)

Heat level

The "Heat level" parameter enables the printer to adapt to possible differences in the thermal properties of the thermal printheads.
An adjustment has already been made in the factory. If the printhead must be replaced, it is very likely the "Heat level" parameter will have to be adjusted.
To adjust the print for different print jobs, it is recommended that you make the heat level adjustment with software. (e.g. for different materials and speed)
The heat level can be set using the software commands. The front panel value and software command value will be totaled together when printing.
The setting of the "Heat level" parameter also affects the printer test prints (see Test functions section).

Print speed

This parameter allows the adjustment of the print speed. This adjustment also affects the printer test prints (see Test functions section).
The print speed can be set for each print job separately with software.
Changing the print speed with software does not change the basic adjustment.

Transfer print

This parameter is used to set the printer's method of printing to thermal transfer printing or direct thermal printing. The setting affects two factors directly related to thermal transfer mode. First, for thermal transfer mode, the printhead requires a lower temperature than when in direct thermal printing mode. Second, the ribbon sensor is active. The setting for transfer print for a single print job can be overwritten with software.

Warn level ribbon

That parameter allows to define a threshold diameter of the ribbon supply roll. As soon as the diameter of the roll falls below this threshold a SNMP or E-mail warning message is sent via Ethernet interface.
So the operator is already asked to prepare a new ribbon roll when the printer is still running.
If your printer has no Ethernet interface, the diameter of the ribbon supply roll can be asked by the q r command (see Programming Manual) using the serial interface. This method is also available if the parameter "Warn level ribbon" is set to "Off".

Label sensor

The printer offers two methods for recognizing the start of label. In most cases, the label edge sensor photocell can be used in the "shine-through" mode ("Gap sensor" mode), where the differing opacities between the label area and spaces between labels is distinguished. In certain special cases, (ie. pre-printed endless material), recognition of the start of the label can be made via reflective markings on the bottom side of the label material.
This parameter can also be changed using software. For different print jobs it is recommended that you make the change in the software.
The setting "Endless media" is especially intended to synchronize the feed of continuous material in cut mode after switching on the printer.
You can find detailed information in the cutter documentation.

Tear-off mode

When the "Tear-off mode" is active, an additional feed forward will take place after completion of the print job. This additional feed makes it possible to cut

or tear off the last label at the tear-off plate. When a new print job is started, the label material will be fed back until the front edge of the first label is repositioned under the printhead.
If the parameter is OFF, the label feed forward stops immediately after the last label has completely passed the printhead.

Backfeed

In cut and peel-off mode, the material will be stopped in a position where the leading edge of the following label has already been forwarded beyond the printhead. The printer will then backfeed the label material from its cut/ dispense position to the printhead. Therefore, the next label can be printed completely.
A backfeed will always be performed if the parameter is set to "always". If the setting is set to "smart", the backfeed will only be performed if the front label is in its cut/dispense position and the printer has not yet received all of the data for printing the following label. Otherwise, the print of the second label will be started, but only completed once the first label has been removed.

Pause reprint

When this option is enabled (On), it is possible to print additional labels by pressing the PAUSE key after the print job has completed, as long as the internal memory of the printer has not been cleared by pressing the CANCEL key.

Error-Reprint

When a recoverable error occurs while printing, this option will determine how the last label will be handled. If this option is enabled (On), the last label will be reprinted once the error has been cleared. If this option is disabled (Off), the print job will continue with the next label.

Barcode error

When this option is enabled (On), after the recognition of invalid bar code contents or invalid bar code sizes the print job will be stopped.
If this option is disabled (Off), the printer tries to replace invalid data by valid characters (e.g. "0"). If the bar code size is invalid, instead of the bar code a grey box will be printed.

Width ASCII dump

The ASCII Dump mode (see chapter 9) provides a method to print the control sequences sent to the interface. In this mode the data received will be printed in text format depending on the selected character set.

Interfaces

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Select the "Setup" menu.
3. Select the "Interfaces" menu.

Setup

Interfaces

Parameter	Meaning	Selection
Character set	Select the character set table Default : **Windows 1252**	**Windows** 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, **DOS** 437, 737, 775, 850, 852, 857, 862, 864, 866, 869, **EBCDIC 500,** **ISO 8859**-1 up to -10, **ISO 8859**-13 up to -16, **Macintosh Roman,** **DEC MCS, KOI8-R,** **Win OEM720, UTF-8**
IEEE1284	Bidirectional parallel Interface Default : **On**	On Off
RS-232	1. Set the baud rate Default : **57.600**	1.200 ... 230.400
	2. Set the protocol Default : **RTS/CTS**	RTS/CTS --- XON/XOFF
RS-422/485	Menu to configure the optional RS-422/RS-485-interface (Menu is only displayed when the PCB is installed.)	
Ethernet	Menu to configure the optional ethernet-interface (Menu is only displayed when the PCB is installed.)	
Keyboard	(Menu is only displayed when an external keyboard is installed.)	
	1. Layout Default : **Automatic = current setting "Country"**	Automatic and all country settings listed in "Local settings, Country"
	2. NumLock Default: **On**	On Off

Table 8e Overview of the "Interfaces" Menu

Character set

The parameter defines how different characters (symbols, letters, special characters) will be translated to the interface.
Before operating the printer, the "Character set" of the printer should be adapted to match the character set of the computer.
Adjustment is not possible with software. However, it is possible to use the Unicode character table for characters which are not included in the selected font.

IEEE1284

The parallel interface basically works in the bidirectional mode.
If the bidirectional mode is switched off, the interface works as a standard Centronics interface.

RS-232

The baud rate and protocol of the interface RS-232 can be set with this parameter.

NOTICE !
If you have the RS-422/RS-485-interface-PCB installed in your printer, the baud rate for the RS-232-interface affects the baud rate of the RS-422-interface and the RS-485-interface.
For the RS-232-interface to operate correctly, it is absolutely necessary to have the computer and printer parameters set the same.

RS-422/485

Once the optional RS-422/RS-485-interface-PCB has been installed, the RS-422/485 menu appears in the interface menu. The RS-422/485 menu contains the parameters necessary to configure the interface. Detailed information about the interface settings can be located in the documentation of the PCB.

Ethernet

Once the optional ethernet-interface-PCB has been installed, the ethernet menu appears in the interface menu. The ethernet menu contains the parameters necessary to configure the interface. Detailed information about the interface settings can be located in the documentation of the PCB.

Keyboard - Layout

If the parameter is set to "Automatic" the printer uses the key assignment of the country that is chosen in the parameter "Local settings / Country".
With the parameter "Keyboard" a key assignment can be chosen that differs from the setting "Country".

Keyboard - NumLock

Turns the Keyboard NumLock option on and off.

Security

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Select the "Setup" menu.
3. Select the "Security" menu.

Setup

Security

Parameter	Meaning	Selection
PIN	Set, erase, change a PIN number to protect certain functions Default : **Off**	**Off** **On** **Change**

Table 8f Overview of the "Security" Menu

PIN

With this menu it is possible to set, erase or change a four-digit code number (PIN). If the PIN is activated, access to the "Setup" menu, certain functions of the memory card and upgrading of the firmware is only possible after the PIN number is entered. This allows protection against unauthorized access to certain settings and functions.
Menu's that are protected will display the symbol .
To set a code number for the first time, choose the "On" option. The first line of the display appears "New PIN" and the second line displays "0000" to enter the new pin. With the key and the key the numbers of the PIN can be changed. The field to be changed will be flashing on the display. Press the key to switch to the next number.
To change the PIN, select "Change". The directions to change a PIN are the same as entering a new PIN number.
To disable the PIN, select "Off". The previous PIN will be erased permanently.

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9. Test Options

Overview

The printer is equipped with several test options. These options make it possible for the user to understand something about :

- important configuration parameters
- the fonts available in the printer
- important hardware components of the printer and connected peripheral devices
- the quality of the print image and the condition of the printhead
- the recognition of the front edge of the label in relation to the optical characteristics of the media
- label data sent from a computer or loaded from the memory card.

The test options are summarized in the "Test" menu of the offline menu.

1. Switch from the "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the required test function by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. For more details on each test option, see the appropriate section.

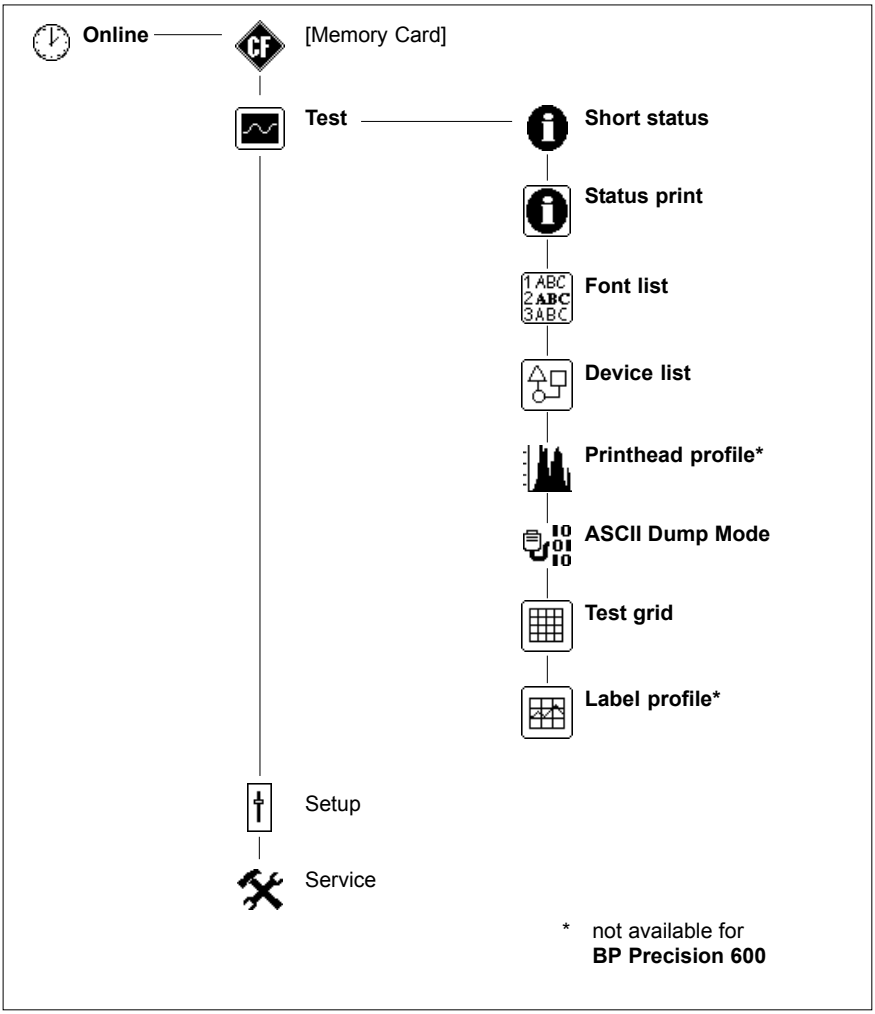


Table 9a Structure of the "Test" Menu in the Offline Menu

Short Status

The "Short status" option offers a convenient method for retrieving and viewing information about the printer configuration on the display.
These values give the user detailed information about the printer and installed options.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed.
   Press the ↵ key to confirm the selection.
3. Select the "Short status" option by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. There are ten pieces of information available using the "Short status" option. Each piece of information is viewed seperately. Use the ↑ key or the ↓ key to move between different pieces of information.

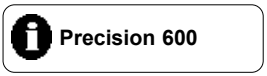


Fig. 9a Short status 1

The type of printer is displayed on the first line.

Fig. 9b Short status 2

The second line will display the version of firmware.

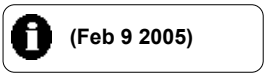


Fig. 9c Short status 3

The third line displays the date of the firmware.

Fig. 9d Short status 4

The fourth line displays the revision number of the CPU.

Fig. 9e Short status 5

The fifth line displays the revision number of the FPGA.

Fig. 9f Short status 6

The resolution of the installed printhead is displayed on the sixth line.

Fig. 9g Short status 7

The seventh line displays the length of material printed in thermal transfer mode in realtime.

Fig. 9h Short status 8

The eighth line displays the length of material printed in direct thermal mode in realtime.

Fig. 9i Short status 9

If the printer is equipped with the optional interface (Ethernet, USB), it is displayed on the ninth line.

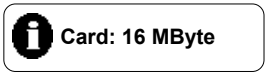


Fig. 9k Short status 10

If you are using a memory card, the capacity of the memory card is displayed on the tenth line.

5. To leave the "Short status" display and return to the "Test" menu, press the ⮜ key.

Status Print

When selecting the "Status print" option, an internal test sample will be printed which contains a variety of information about the configuration of the printer as well as status of the printer.
To prepare for a status print, load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.

NOTICE !
With "Status print", the printer will not sense any label gaps, and will print non-stop, producing output with an approximate length of 10.3" (260 mm). Continuous paper works best for the prints, otherwise, a regular sheet of paper cut to a width of 4.7 in (120 mm) can be used in thermal transfer mode.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the "Status print" option by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. Start the printout by pressing the ↵ key.
5. The "Status print" will be printed with the heat level and the print speed set in the "Setup" menu.
6. To cancel the "Status print", press the CANCEL key.
7. Once the printout has completed, the printer returns to the selection list of the "Test" menu.

The status print contains :

A) the type of printer as well as the version and date of the printer's firmware.

B) the values of selected configuration parameters.

C) cumulative operating time of the printer, amount of printed labels as well as cumulative length of printed material in direct thermal and thermal transfer mode.

D) the current values of printhead temperature and heat voltage

E) details about the operation of the sensor used for recognizing the media front edge

F) a test pattern to display the quality of the print image.

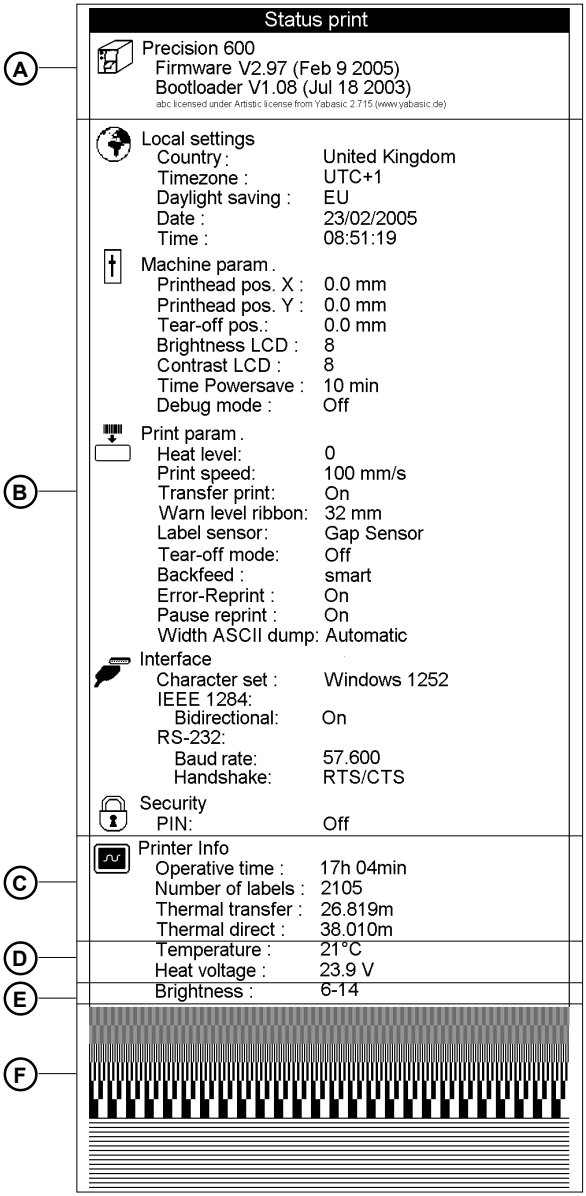
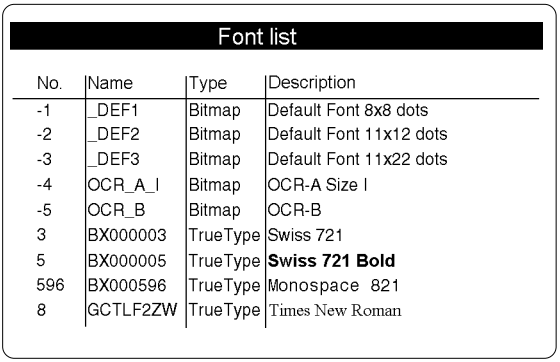


Fig. 9I Status Print

Font List

The important parameters of the fonts available in the printer are printed as a table. The table contains both the fonts saved in the printer internal memory and the fonts loaded into the printer externally from the memory card.
To prepare for a font list, load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer. The font list will print continuously without sensing the label gap.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the "Font list" option by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. Start the printout by pressing the ↵ key.
5. The "Font list" will be printed with the heat level and the print speed set in the "Setup" menu.
6. To cancel the "Font list" print, press the CANCEL key.
7. After completing the printout, the printer returns to the selection list of the "Test" menu.



Font list

No.	Name	Type	Description
-1	_DEF1	Bitmap	Default Font 8x8 dots
-2	_DEF2	Bitmap	Default Font 11x12 dots
-3	_DEF3	Bitmap	Default Font 11x22 dots
-4	OCR_A_I	Bitmap	OCR-A Size I
-5	OCR_B	Bitmap	OCR-B
3	BX000003	TrueType	Swiss 721
5	BX000005	TrueType	**Swiss 721 Bold**
596	BX000596	TrueType	Monospace 821
8	GCTLF2ZW	TrueType	Times New Roman

Fig. 9m Font List

The definition of the parameters printed on the font list are as follows:

No. : Font number for the font used in programming (**T command**)

Name : Name of the font as it is saved internally

Type : Type of the font. Determines how the font is sized and what options are available when programming. (see the **T command** in the programming guide)

Description : A detailed description of the font's name, size, etc.

Device List

The hardware components installed in the printer and the optional devices connected to the printer are displayed in this list.
To print the device list, load media (labels, continuous paper) and a transfer ribbon, which extends over the entire print width of the printer.
The device list will print continuously without sensing the label gap.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the "Device list" option by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. Start the printout by pressing the ↵ key.
5. The "Device list" is printed using the heat level and print speed set in the "Setup" menu.
6. To cancel the "Device list" printing, press the CANCEL key.
7. After completing the printout, the printer will return to the selection list on the "Test" menu.

Device list

Name	Description
CPU	Precision, #103030747885
	PCB-Rev. 5, FPGA-Rev. 3
TPH	600 dpi, 2496 dots
CARD	15 MByte (SanDisk SDCFB-16)
	#243338G0812, vde 1.10
SLOT	USB Full-Speed
	#046125495647, Rev. 1.00
USB [1]	Generic/Generic Hub
[0] Full	Rev. 3.00
USB [2]	QTRONIX/USB Keyboard and Mouse
[1/4]Low	Rev. 1.12
USB [3]	cab/Frontpanel
[1/1]Full	Rev. 1.02
USB [3]	cab/CompactFlash
[1/1]Full	Rev. 1.02

Fig. 9n Device List

The meaning of the details printed on the device list are as follows:

CPU : Type and serial number of the CPU
Revision number of the CPU and FPGA

TPH : Resolution and number of dots
of the printhead installed

CARD* : Capacity, manufacturer, serial number and
version number of the FlashCard installed

SLOT* : Type, serial number and revision number of the
interface expansion card installed.

USB [a]*
[b/c]Speed : Type and revision number of the USB devices installed
a : identifying number of the USB device
b : identifying number of the USB device, which is connected to device a
c : identifying number of the device b port, which is connected to device a
Speed : Low- or High-Speed-USB-device

* Will only be printed if the respective devices are installed.

Printhead Profile

NOTICE !
The test option "Printhead profile" is not available for BP Precision 600 !

When selecting the option "Printhead profile", a diagram will be printed which shows the resistance values for the single printhead dots. This printout makes it possible to see the status of the printhead.
When a dot is damaged or defective its resistance value increases. When this error occurs, it causes white lines in the print image from top to bottom. In some cases, the white line could cause an invalid scan of certain barcodes.

To print the printhead profile, load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.

NOTICE !
With "Printhead profile", the printer will not sense any label gaps, and will print non-stop, producing output with an approximate length of 9" (230 mm) for a 203dpi printhead and 13" (340 mm) for a 300dpi printhead. Continuous paper works best for the prints, otherwise, a regular sheet of paper cut to a width of 4.7" (120 mm) can be used in thermal transfer mode.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the option "Printhead profile" by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. Start the printout by pressing the ↵ key.
5. The "Printhead profile" will be printed with the heat level and print speed set in the "Setup" menu.
6. To cancel the print, press the CANCEL key.
7. After completing the printout the printer returns to the selection list of the "Test" menu.

The printout has a scale which marks the actual geometric position of the dots. The scale will be printed underneath the black bar with the text "Printhead profile". It is possible to compare a single dot to the scale as demonstrated in the following diagram.
Figure 9o indicates a print image failure around 22.5 mm in the black bar.
In the scale section of the diagram, a dot with an increased resistance value appears around 22.5 mm. Using this comparison makes it clear that the image fault on the top line is caused by a defective printhead and not a case of a dirty printhead surface.

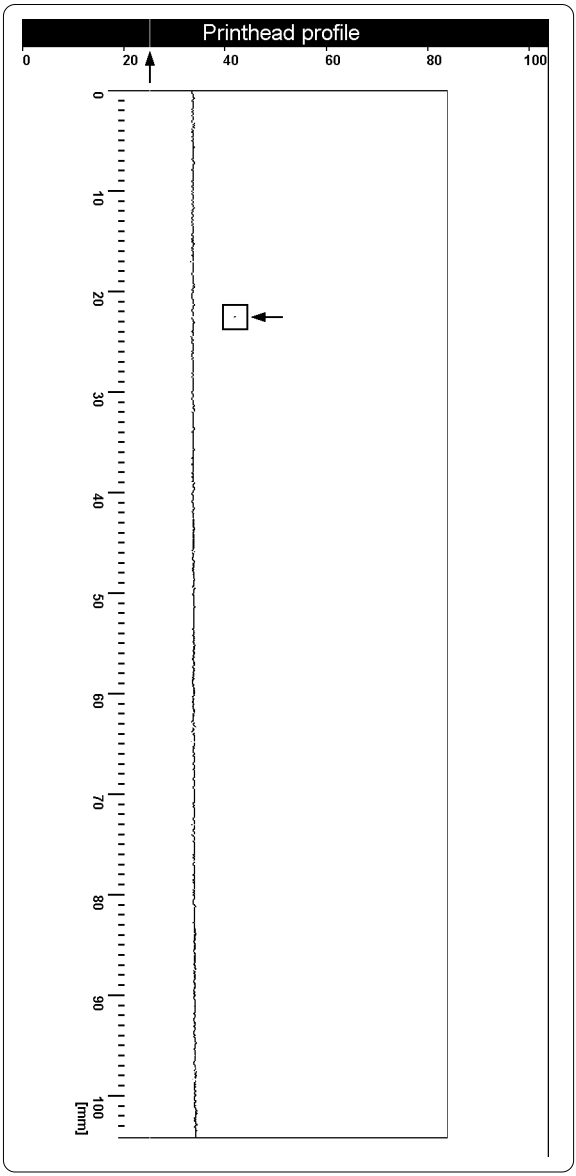


Fig. 9o Printhead Profile

ASCII Dump (Monitor) Mode

The ASCII Dump mode provides a method to print the control sequences sent to the interface. In this mode the data received will be printed in text format depending on the selected character set. Error messages will be printed directly behind the fault, e.g. for unknown commands.
In this mode, the printer will not sense gaps between labels.

NOTICE !
The font used for the printout in this mode is large enough to be clearly readable after facsimile transmission. For questions or future reference, using this mode, you may print and retain a copy of the label data for each label you print.

To get a printout in monitor mode, load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.

NOTICE !
If only small materials available then it is possible to cut the width of the printout to at least 2 in (50mm). The value can be set using the parameter "Width ASCII dump" (see chapter Setup / Print Parameters).

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the option "ASCII Dump Mode" by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. Start the ASCII Dump mode by pressing the ↵ key.
5. Send a print job to the printer.
6. The ASCII Dump mode printout will be printed with the heat level and print speed set in the "Setup" menu.
7. In ASCII Dump mode, the printing of data will occur after four lines of data has been received. In some cases, the last few lines of text have to be printed by pressing the FEED key.
8. To cancel the ASCII Dump mode printout, press the CANCEL key.
9. Press the CANCEL key to return to "Online" mode.

The control characters (ASCII Code 00 ... 31) as printed on ASCII Dump mode printouts are as follows:

Code DEC	Code HEX	Printout	Code DEC	Code HEX	Printout	Code DEC	Code HEX	Printout	Code DEC	Code HEX	Printout
00	00	NUL	08	08	BS	16	10	DLE	24	18	CAN
01	01	SOH	09	09	HT	17	11	DC1	25	19	EM
02	02	STX	10	0A	LF	18	12	DC2	26	1A	SUB
03	03	ETX	11	0B	VT	19	13	DC3	27	1B	ESC
04	04	EOT	12	0C	FF	20	14	DC4	28	1C	FS
05	05	ENQ	13	0D	CR	21	15	NAK	29	1D	GS
06	06	ACK	14	0E	SO	22	16	SYN	30	1E	RS
07	07	BEL	15	0F	SI	23	17	ETB	31	1F	US

Fig. 9p Representation of the Control Characters in ASCII Dump Mode

Example of ASCII Dump Mode

The following shows the "normal" appearance of a printed label, followed by the appearance of the same label when its commands are printed in ASCII Dump mode.

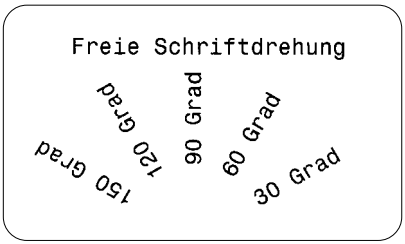


Fig. 9q Output Label

```
J
H 100,4,D
S 11;0,0,68,71,106;
T 20,10,0,596,pt18;Freie Schriftdre
hung
T 72,54,30,596,pt18;30 Grad
T 65,46,60,596,pt18;60 Grad
T 56,42,90,596,pt18;90 Grad
T 46,44.5,120,596,pt18;120 Grad
T 38,50.5,150,596,pt18;150 Grad
A 1
```

Fig. 9r Label commands printed in ASCII Dump mode

Test Grid

The "Test grid" option generates a printout that prints a test grid that allows the operator or service technician to evaluate and check the quality of the printed image.

To get a printout of the test grid, load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Test" menu is displayed. Press the ↵ key to confirm the selection.
3. Select the option "Test grid" by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
4. Start the printout by pressing the ↵ key.
5. The pattern shown in figure 9s will be printed. The printout will repeat about every 5 seconds making it possible to make adjustments on the printer between the individual printouts.
6. The "Test grid" printout will be printed with the heat level and print speed set in the "Setup" menu.
7. The "Test grid" printout can be canceled by pressing the CANCEL key. Once the printout has been canceled, the printer returns to the selection list of the "Test" menu.

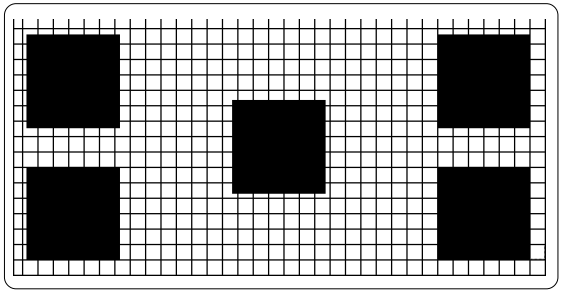


Fig. 9s Test Grid

Label Profile

The "Label profile" option checks the recognition of the media edge in relation to the optical characteristics of the media and liner.
Values measured by the media edge sensor during the media feed are saved and printed in the "Label profile" printout.

To print the "Label profile" printout, you will need to load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer. The media the profile will be printed on, is independent of the media to be tested.

1. Select the type of sensor (gap sensor or bottom-reflective sensor) to be tested in the "Setup" menu.
2. Load the media to be tested in the printer.
3. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
4. Press the ↑ key or the ↓ key until the "Test" menu is displayed.
   Press the ↵ key to confirm the selection.
5. Select the "Label profile" option by pressing the ↑ key or the ↓ key and confirm the selection by pressing the ↵ key.
6. The printer will carry out a media feed. The sensor will measure the optical properties of the media.
7. After completing the media feed, "Test print OK ↵" will appear on the display.
8. Load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.
9. Press ↵ key to start printing the "Label profile" printout.
10. The "Label profile" printout is printed with the heat level and print speed set in the "Setup" menu.
11. After completing the printout, the printer will return to the selection list of the "Test" menu.

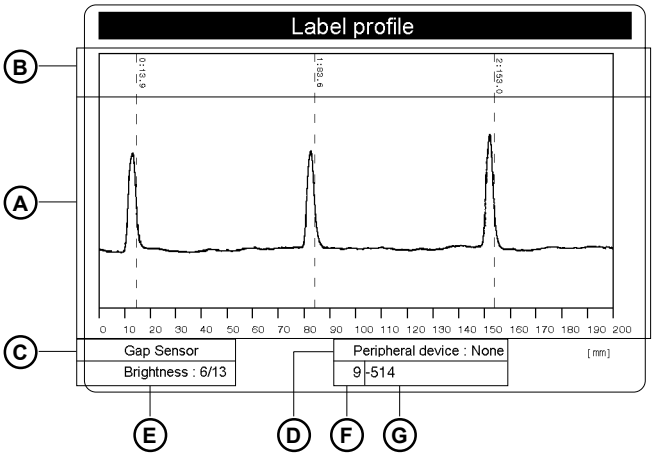


Fig. 9t Label Profile

The meaning of the details shown in the label profile are as follows:

A) Profile of the values measured at the sensor. These values are terms for the difference in opacity between the media and gap or in the case of the bottom reflective sensor, the reflectivity between the media and the printed mark.

B) Coordinates in paper feed direction where media front edges were detected.

C) The method of media recognition (gap sensor or bottom-reflective sensor).

D) The type of peripheral device connected.

E) Settings for use by Maintenance technicians. A more detailed explanation can be found in the Service Manual.

F) Settings for use by Maintenance technicians. A more detailed explanation can be found in the Service Manual.

G) Settings for use by Maintenance technicians. A more detailed explanation can be found in the Service Manual.

10. Memory Cards

The **BP Precision** printers offer the ability to use memory cards to permanently save formats, graphics, fonts and database information on the memory card. Data is sent to the memory card using the printer's interface and stored on the memory card.

Although memory cards have non-volatile memory, it is recommended that you make backup copies in case the original card malfunctions or is lost.

Type 1 CompactFlash cards with a maximum capacity of 512 MegaByte can be used.

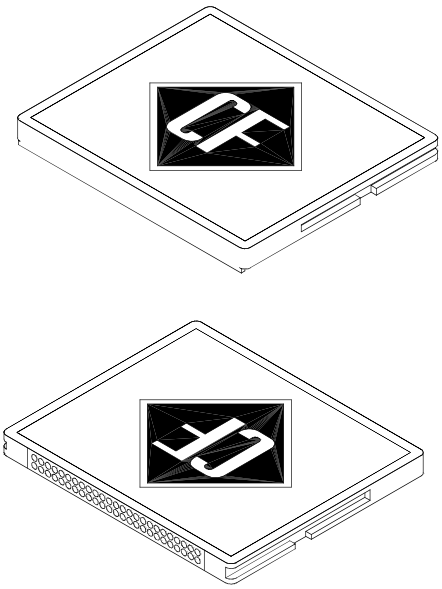


Fig. 10a CompactFlash Memory Card

Installation and Removing the Memory Card

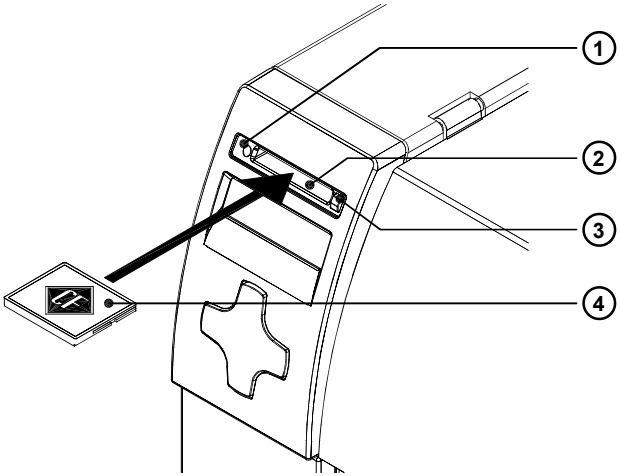


Fig. 10b Installation of the Memory Card

Installation of the Memory Card

With the CompactFlash card contacts facing the slot (**2**), insert the card (**4**) into the slot (**2**) until the eject button (**3**) pops out of the cover on the front panel.

NOTICE !
There are guides on the sides of the memory card which make it impossible to insert the card incorrectly.

Removing the Memory Card

Press the eject button (**3**) and remove the card from the slot (**2**) by hand.

CAUTION !
To avoid loss of data on the memory card, do not eject the memory card if the LED (1) next to the slot (2) is illuminated.

Preparing the Memory Card

In order to use the memory card the first time, the card must be formatted for the printer to read and write data. Often the cards are preformatted for use with the printer.
If the card you are using is not formatted, the printer will display either "Unknown card" or "Structural err" on the front display. If the message is displayed, you must format the card using one of the following methods:

1. Format the card using the printer's "Format card" option in the Offline menu (see "Memory card options in the Offline Menu" section).

2. Format the card sending the software command "Mf;name CR" (see the Programming Manual for more information) through the connected interface.

3. Format the card using a FlashCard drive on a PC.

Writing to the Memory Card

There are different methods to write formats to a memory card.

The most secure and practical method to write to the memory card is the printer's interface.

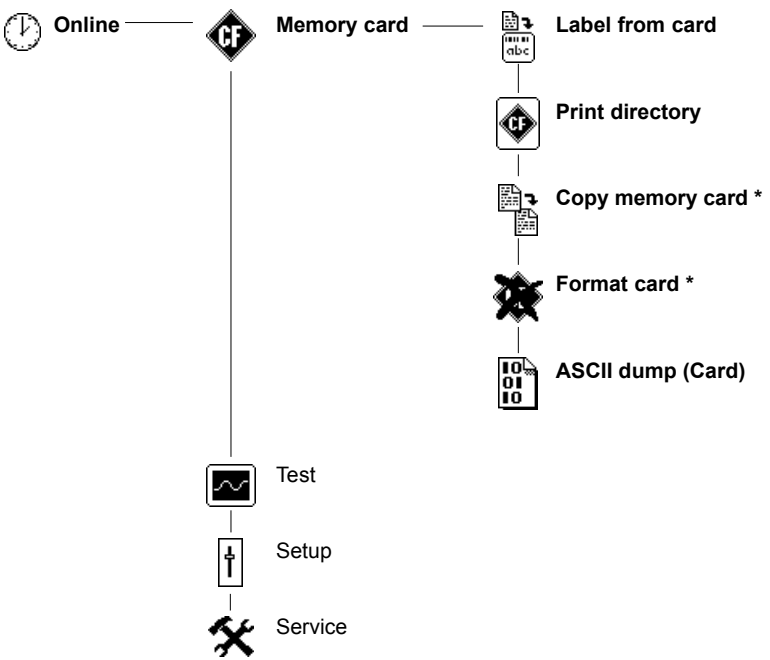
For saving a label to the memory card using direct programming, place the "Ms" command at the beginning and end of your format:

```
Ms LBL;ABC                  Command to save a file called ABC"
J                           |
H 100,0,T                   |
S l1;0,0,68,71,104          |        Contents of the file "ABC"
T 10,10,0,3,pt15;Memory card|
A 1[NOPRINT]                |
Ms LBL                      End of Save File command
```

After processing the commands, the format "ABC" is stored on the memory card
The [NOPRINT] parameter after the A command suppresses the printing of a label while saving the file to the memory card. Whenever the file "ABC" is accessed from the memory card, one label will be printed. If you want the operator to specify an amount of labels to be printed, move the A command statement after the second "Ms" command in the example above.

Memory Card Options in the Offline Menu

Overview



* The options "Copy memory card" and "Format card" can be protected from unauthorized access by a PIN.

Table 10a Structure of the "Memory card" Menu on the Offline Menu

Access to the menu shown in table 10a is only available when a memory card is installed.

The following sections will provide detailed information about the memory card functions listed in the table.

Label from Card

The "Label from card" option prints labels which are stored on a memory card.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key. The "Memory card" selection will be displayed on the LCD.
2. Press the ↵ key. The "Label from card" selection is displayed on the LCD.
3. Press the ↵ key again. The name of the first label stored on the memory card is displayed on the LCD.
4. Scroll up and down the directory of the card using the ↑ key or the ↓ key.
   Press the ↵ key to confirm the selection of the label to be printed.
5. If you select a label which was saved with a defined number of labels to print, the printout starts at once.
6. If you select a label with a variable number of labels to print, "Number of labels" appears on the first line of the LCD. On the second line "00001" appears with the first number flashing (cursor).
7. With the ↑ key or the ↓ key, the number at the cursor position may be changed. The cursor can be moved one number to the right by using the ↵ key. After confirming the last number the printout will start.
8. If the label was designed with operator prompted fields, the symbol is shown on the display. Using a keyboard, an externel device or the keys on the front panel, enter the data on the requested line. The method of entering operator prompted data is similar to the method of entering the number of labels. Letters and numbers can also be entered with the front panel keys if necessary.
9. Label selection or the number of labels selected, can be canceled by pressing the ↵ key.

Access to the stored data on the memory card is also possible using the connected interface and computer.

Print Directory

When using the "Print directory" option, the directory of the installed memory card is printed.
To print the directory, load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key. The "Memory card" menu is displayed on the LCD. Press the ↵ key.
2. Select the "Print directory" option using the ↑ key or the ↓ key.
3. Press the ↵ key. The directory of the card is printed.
4. In the printout you can find :
   - the name of the memory card
   - information about the data saved on the memory card
   - the amount of space remaining on the memory card
5. After completing the printout, the "Memory card" selection is displayed on the LCD.

```
Directory of 'CF-CARD    ':
DAUER    LBL      118  19.03.03 14:50
HALLO    LBL      196  19.03.03 14:56
TREIBER  LBL      184  19.03.03 15:24
HALTEN   LBL      198  23.03.03 08:49
TEST     LBL       70  16.03.03 13:19
TEST     IMG     1254  19.03.03 15:24
ARIAL    TTF    72476  16.03.03 13:13
COMIC    TTF   126364  16.03.03 13:13
TAHOMA   TTF   198864  16.03.03 13:13
7649280 bytes free
```

Fig. 10c Printout of the Directory of a Memory Card

Copy Memory Card

This option may be used to copy all of the files from one memory card onto another one.
The duplication is carried out file by file. This allows the usage of memory cards with different capacities.
It is also possible to copy files to a previously used card.

CAUTION !
If there are files on both source and destination cards with identical names, the files on the destination card will be overwritten without warning!

To protect the card from unauthorized copying, a code number (PIN) can be set (see the "Printer Configuration - Security" section).

CAUTION !
While copying, DO NOT remove the source or destination card unless you are prompted to do so by the LCD !

1. Install the source card.
2. Switch from "Online" mode to the Offline Menu by pressing the MODE key. The "Memory card" menu is displayed on the LCD. Press the ↵ key.
3. Select the "Copy memory card" option using the ↑ key or the ↓ key. Press the ↵ key.
4. The "Copy memory card" option is displayed on the LCD with a default selection of "No". Change the selection to "Yes" using the ↑ key or the ↓ key. Press the ↵ key.
5. If the "Copy memory card" option is protected by a PIN, the printer will prompt for the PIN by displaying "PIN: 0000" on the LCD. The numbers of the PIN may be changed using the ↑ key and the ↓ key. The position of the number to be changed will be flashing. You can switch to the next number by pressing the ↵ key. If the all of the numbers are entered correctly, the "Copy memory card" process will begin.
6. The printers LCD will indicate the progress with a progress bar. Once around 2 MByte is read from the source card the "Insert dest." request appears on the LCD.
7. Remove the source card and insert the destination card.

8. The data that was read from the source card will now be transferred onto the destination card. As this is happening the progress bar on the LCD will be emptied.
   If not all files were read from the source card yet; the request "Insert source" will appear on the LCD.

9. Remove the destination card and insert the source card again. The next cycle of copying will start.

10. Repeat steps 6 to 9 until all the files are copied. When the printer finishes copying the files the LCD will display "OK ↵ ".

11. Press the ↵ key to return to the "Memory card" menu selection list.

When the destination card cannot store any more information the LCD will display "Card full".

Format Card

This option will format and delete all data from a memory card. This option must be used if the message "Unknown card" or "Structural err." is displayed on the LCD. To protect the card from unauthorized formatting, a code number (PIN) can be set (see the "Printer Configuration - Security" section).

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key. The "Memory card" menu is displayed on the LCD. Press the ↵ key.
2. Select the "Format card" option using the ↑ key or the ↓ key. Press the ↵ key.
3. The "Format card" option is displayed on the LCD with a default selection of "No".
4. Change the selection to "Yes" using the ↑ key or the ↓ key. Press the ↵ key. If the "Format card" option is not protected by a PIN, the formatting will begin immediately.
5. If the "Format card" option is protected by a PIN, "PIN: 0000" appears on the display requesting input. The numbers of the PIN may be changed using the ↑ key and the ↓ key. The number to be changed will be flashing on the display. You can switch to the next number by pressing the ↵ key. If the input of all numbers is correct, the formatting will begin.

CAUTION !
During formatting, DO NOT remove the memory card from the printer!

6. After completing the memory card formatting, the memory card capacity is displayed on the bottom line of the LCD.
7. Press any key to return to the "Memory card" menu selection list.

ASCII Dump (Card)

The label formats stored on a memory card are files that contain printer commands. The "ASCII dump (Card)" option offers the ability to print these command sequences as text.
The "ASCII dump (card)" option works the same as the standard ASCII dump mode explained in the "Test Options" section.

To print the "ASCII dump (Card)", load media (labels, continuous paper) and a transfer ribbon (if applicable), which extends over the entire print width of the printer.

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key. The "Memory card" menu will be displayed on the LCD. Press the ↵ key.
2. Select the "ASCII dump (Card)" option using the ↑ key or the ↓ key.
3. After pressing the ↵ key, the name of the first label format saved on the memory card is displayed on the LCD.
4. Select the desired label format using the ↑ key or the ↓ key.
5. Start the printout by pressing the ↵ key.
6. In "ASCII dump (card)" mode, the printout starts after four lines of data has been received. It is often necessary to press the FEED key to print the remaining lines.
7. The printout may be canceled by pressing the CANCEL key.
8. Press the CANCEL key to return to "Online" mode.

11. External Keyboard

The printer offers the ability to connect an external keyboard or any other compatible input device, such as a barcode scanner, directly to the printer. Using an external keyboard, the input of variable data when using a memory card is easier.
Data that is typed on the keyboard will be displayed on the printer's LCD.

All USB keyboards with a Type A USB connector are compatible.

Connecting the External Keyboard

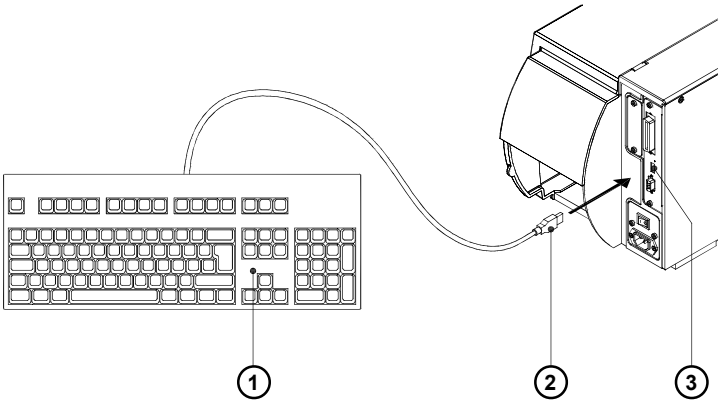


Fig. 11a Connecting the External Keyboard

Plug the cable (**2**) of the keyboard (**1**) into the keyboard interface connector (**3**) located on the rear of the printer.

Key Assignment

The printer can be configured to the keyboards configuration for the particular country by setting the "Country" parameter. For each "Country" setting, the printer has a different key assignment table, which is normally the same as the MS DOS keyboard tables.

The [ALTGR] key has no function. Therefore all signs which are located on the right hand side of the key opposite of the normal characters (e.g. { } [ ] \ ) can be generated by pressing the [ALT] key. A few other signs (e.g. ¨ × ÷) may also be generated the same way (see table 11a).

Other special characters (e.g. ñ ç œ) can be created by typing two characters one after the other, where the second input is a combination with the [ALT] key (see table 11b).

Some of the special characters cannot be displayed on the printer LCD. In that case, the printer will use a character which looks similar to the required character.

NOTICE !
When using a scanner, the character set of the scanner has to be the same as used by the printer.

Special Key Functions

[F1]	Enter the memory card directory to see labels stored on the memory card.
[F2]	Repeat the print of the last label.
[F3]	Repeat the print of the last label and prompt for variable data.
[F8]	Formfeed on the printer
[ENTER]	Without a print job present, switch between ONLINE and OFFLINE mode; When processing a print job, confirms the inputed data on variable data fields and prompts.
[ESC]	To cancel the data input . (Has the same effect as CANCEL when printing).
[SPACE]	Will PAUSE the printer if labels are currently printing.
[Shift]-[Del]	Delete the inputed data on variable fields and prompts.
[↑],[↓]	Scroll up and down the directory of the memory card.

Special Characters Available with an External Keyboard

Character	[ALT] + key ...											
€	E	E	E	E	E	E	E	E	E	E	E	E
{	7	’			ä	à	ç	7	8	´	7	B
}	0	=			$	$	à	0	9	ç	0	N
[	8	(			ü	è	^	8	è	`	8	F
]	9	)			¨	¨	$	9	+	+	9	G
\	ß	_			<	<	<	+		º	<	Q
|	<	-	`		1	1	&	<		1	´	W
’									\	0		
´			’	`	’	’	ù					í
`		è					µ		´			ý
^		ç					§					š
ˇ	^	^	6	6	§	§	²	§	Ì	<	½	;
¨	.		.	.					.			=
~	+	é			^	^	=	¨	ù	4	¨	+
º			0	0				´	0	0		ř
²	2								2			
³	3								3			
#		"			3	3	"		à	3		X
$								4			4	ů
¢					8	8						
£								3			3	
¤		$										¨
@	q	à			2	2	é	2	ò	2	2	V
µ	m								m	m	m	
¬					6	6				6		
÷	/	/	/	/	/	/	/	/	/	/	/	/
×	*	*	*	*	*	*	*	*	*	*	*	*
	GR	FR	UK	US	SG	SF	BE	SU	IT	SP	DK	CZ

Character	[ALT] + key
˘	č
¸	ž
˙	á
˝	é
˛	´
÷	ú
×	)
đ	S
Đ	D
ł	K
Ł	L
ß	§
&	C
<	,
>	.
*	-
	CZ

Table 11a **Special characters with reference to different country settings, which are available with the [ALT] key on the external keyboard**

| / **|**,**|** * **|** ... Keys of the numeric keyboard

GR : Deutschland
FR : France
UK : United Kingdom
US : USA
SG : Schweiz
SF : Suisse
BE : Belgie
SU : Suomi
IT : Italia
SP : España
DK : Danmark
CZ : Ceska republika

ZZ	Z1	Z2	ZZ	Z1	Z2	ZZ	Z1	Z2	ZZ	Z1	Z2
À	`	A	Ò	`	O	å	°	a	ò	`	o
Á	´	A	Ó	´	O	æ	a	e	ó	´	o
Â	^	A	Ô	^	O	ª	_	a	ô	^	o
Ã	~	A	Õ	~	O	ç	,	c	õ	~	o
Ä	¨	A	Ö	¨	O	¢	|	c	ö	¨	o
Å	°	A	Ø	/	O	č	ˇ	c	ø	/	o
Æ	A	E	Œ	O	E	ď	’	d	œ	o	e
Ç	,	C	Ř	ˇ	R	è	`	e	º	_	o
Č	ˇ	C	Š	ˇ	S	é	´	e	ŕ	´	r
D’	’	D	Ù	`	U	ê	^	e	ř	ˇ	r
È	`	E	Ú	´	U	ë	¨	e	š	ˇ	s
É	´	E	Û	^	U	ě	ˇ	e	ß	s	s
Ê	^	E	Ü	¨	U	ì	`	i	ť	’	t
Ë	¨	E	Ý	´	Y	í	´	i	ù	`	u
Ì	`	I	¥	-	Y	î	^	i	ú	´	u
Í	´	I	Ž	ˇ	Z	ï	¨	i	û	^	u
Î	^	I	à	`	a	ij	i	j	ü	¨	u
Ï	¨	I	á	´	a	ľ	’	l	ů	°	u
IJ	I	J	â	^	a	Í	´	l	ý	´	y
£	-	L	ã	~	a	ñ	~	n	ÿ	¨	y
Ñ	~	N	ä	¨	a	ň	ˇ	n	ž	ˇ	z

Table 11b **Special characters available by entering two characters one after another using the external keyboard.**

To create the character **ZZ**: Type the first character **[Z1]**, then type the second character **[ALT-Z2]**

For example : For the letter **"ñ"**, type the first character **[~]**, then type the second character **[ALT-n]**

NOTICE !
Use the data in table 11a to enter the Z1 character if it is not available on your keyboard.

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Appendix A - Operation in Peel-off Mode

Components for the Peel-off Mode

The **P-version** printer types are specificly developed for operation in the peel-off mode and they are equipped with dispense plate (**8**) as standard. Additionally an optional present sensor (**3**) is needed.

In the peel-off mode the labels are removed from the silicon liner immediately after printing, and then available in a dispense position (**4**) ready for further processing. The see-through present sensor consisting of transmitter (**1**) and receiver (**2**) indicates the presence of a label, and pauses the printing process until the label is removed. After taking the label from the dispense position the next label will be printed.

To guarantee a maximum of reliability in the peel-off mode the printer is additionally equipped with a pair of rollers (**5,6**) to cause the dispense tension.

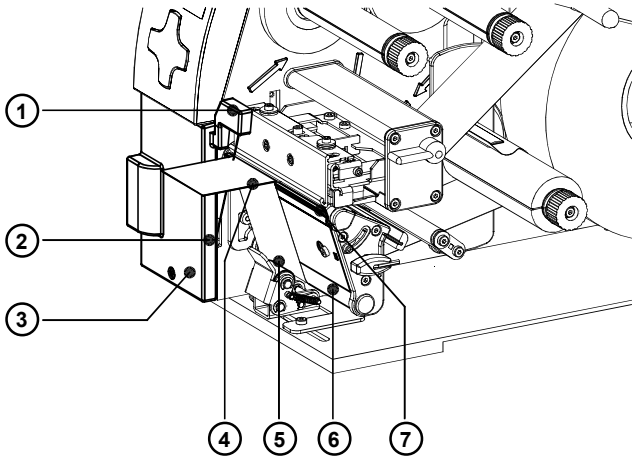

Fig. A-1 Components for Peel-off Mode

Preliminary Tests

The media width and height given in the Technical Specifications are suggested values for media when using the present sensor :

Label Width : 1 to 4.6 in (25-116 mm)

Label Height : .5 to 7.9 in (12-200 mm)

CAUTION !
When using different media from the specifications, for example
- **media which is smaller than the specifications above,**
- **very thin media,**
- **very thick silicon liner,**
- **media with aggressive adhesive,**
- **transparent media**

it is recommended to test the media before !

The print speed in the peel-off mode is limited to maximum 4 ips (100mm/s). This limitation guarantees a correct operation in the dispense mode when using maximum supply rolls (diameter 7.9in/200mm, width 4.7in/120mm).
When using supply rolls with a small outside diameter it is possible to increase the print speed during on-demand labelling. For that purpose the speed limitation has to switch off. Then the print speed can be set on all possibilities until 8 ips (200mm/s) for **BP Precision 200P** or until 6 ips (150mm/s) for **BP Precision 300P**.

CAUTION !
When operating the BP Precision 200P/300P with higher speed it is strongly recommended to carry out preliminary tests using the appropriate maximum rolls !

Present Sensors

Two different types of present sensors are offered :

Present Sensor **PS8** : The see-through sensor indicates the label in the peel-off position and stopps the print job. After removing of the label, the next one is printed.

Present Sensor **PS6** : The indication of the label in the peel-off position is also done via see-through sensor. With an additional peripheral interface the peel-off process can be controlled by an external application.

Detailed information about the present sensors can be found in the concerning Operator's Manuals.

Appendix B - Pin Assignment of the Interface Connectors

Pin Assignment of the RS-232 Interface

The printer is equipped with a 9 pin SUB-D connector for the serial RS-232 interface.

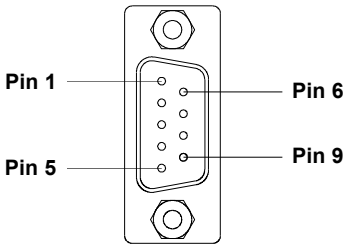

Fig. B-1 RS-232 Interface Connector (rear of the printer)

Pin	Signal	Function
1	CD	Carrier Detect
2	TxD	Transmit Data
3	RxD	Receive Data
4	DTR	Data Terminal Ready (not used)
5	GND	Ground
6	DSR	Data set ready (not used)
7	RTS	Request to send
8	CTS	Clear to send
9	RI	Ring Indication (not used)

Table B-1 Pin Assignments of the RS-232 Interface Connector

Interface Cable for RS-232

To communicate with the printer, a standard RS-232 interface cable is used.

If you have any problems interfacing with the printer, contact the manufacturer of your computer on the pin assignments of the interface. Use the pin assignment of the printer as shown in Table B-1 to obtain a compatible cable.

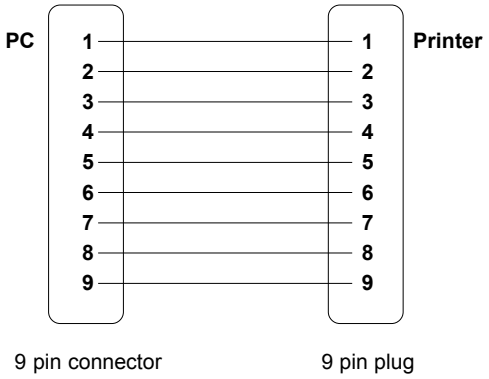

Fig. B-2 Interface Cable with 9 pin Connector

Pin Assignment of the Parallel Interface Connector

The printer provides a 36 pin connector for the parallel interface.

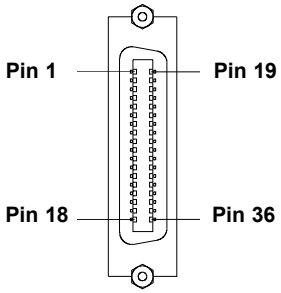

Fig. B-3 Parallel Interface Connector (rear of the printer)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	/STROBE	10	/ACKNLG	19	GND	28	GND
2	DATA 0	11	BUSY	20	GND	29	GND
3	DATA 1	12	PE	21	GND	30	GND
4	DATA 2	13	SLCT	22	GND	31	/INIT
5	DATA 3	14	/AUTOFD	23	GND	32	/FAULT
6	DATA 4	15	nc	24	GND	33	nc
7	DATA 5	16	GND	25	GND	34	nc
8	DATA 6	17	Chassis	26	GND	35	nc
9	DATA 7	18	+5V	27	GND	36	/SLCTIN

Table B-2 Signals of the Parallel Interface

Parallel Interface Cable

The cables for parallel interface connections are standard parallel cables.

If problems occur, please contact the manufacturer of your computer on the pin assignment of the computer's parallel interface. Use the pin assignment of the printer as shown in Table B-2 to obtain a compatible cable.

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Appendix C - Error Messages / Problem Solution

Error Messages

The printer is equipped with a self diagnostic system that will indicate errors on the printer's LCD. The operator will be informed by the printer LEDs whether there are recoverable errors allowing continuation of the print job (ie. "Out of paper"), or an error which requires discontinuation of the print job.

Recoverable Errors

While processing a print job, errors can occur that can be 'recovered' by the operator, allowing the print job to continue from the point at which it was stopped.

Display

The symbol STOP appears in the display.

The display shows the type of error and the total amount of labels remaining for the current print job.

Function Keys

Key	Description	Function
PAUSE	flashing	Continues the current print job after the error has been corrected.
CANCEL	on	Short press - Cancels the current print job Long press - Cancels the current print job and deletes all jobs from the internal memory

Table C-1 Function of Keys in the Recoverable Error Mode

Non-Recoverable Errors

During printing, an error has occured which cannot be cleared without canceling the print job (e.g. hardware error).

Display

If a non-recoverable error occurs the symbol

appears in the display and the type of error is displayed.

Function Keys

Key	Description	Function
CANCEL	flashing	Short press - Cancels the current print job Long press - Cancels the current print job and deletes all jobs in the internal memory

Table C-2 Function of Keys in Non-Recoverable Error Mode

Errors during System Test

When powered on, the printer automatically performs an internal self test.
If the test is completed succesfully, the printer proceeds to ONLINE mode.

If a hardware-error occurs, the symbol appears on the LCD and the type of error is displayed. If this happens, power the printer off, then on again.
If the error is still present, call for Service.

List of Error Messages

The following table contains an overview of possible error messages, possible causes and solutions. Errors that can be recovered are marked with " * ".
If the solution does not solve the problem, call for Service.

Error	Possible Cause	Solution
ADC malfunction	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service.
Buffer overflow	The data receive buffer is full but the computer is still sending data.	Make sure you are using the RTS/ CTS protocol to send data.
Card full	Refers to the optional memory card; No more data can be stored on the card.	Replace the card.
Cutter blocked	Optional "Cutter" error. The cutter is unable to cut the media due to the thickness; The Cutter blades cannot return to the home position and stay in an undefined position.	Switch printer off, remove media from the cutter and turn the printer on. If the error message continues, contact Service. Otherwise, check the thickness of the media and replace if necessary.
Cutter jammed	Optional "Cutter" error. The cutter is unable to cut the media due to the thickness, but the Cutter blades are able to return to the home position.	Switch printer off and check the media in the cutter area for possible double layering or folding. Start a test cut by pressing the PAUSE key. If the error reoccurs, replace the media.
Cutter stuck	Hardware error on the optional "Cutter".	Switch printer off, then on again. If error reoccurs, contact Service.
dRAM malfunction	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service.

Table C-3 Error Messages

Error message	Possible cause	Solution
File not found	Requested file is not on the card.	Check the contents of the card.
FPGA malfunction	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service.
Head malfunction	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service.
Head open *	Printhead is not locked.	Lock the printhead.
Head too hot *	Printhead has overheated due to labels containing a lot of graphics, text, bar codes, etc.	After allowing the printhead to cool down, the print job will continue automatically. If the fault occurs repeatedly reduce the heat level or the print speed setting in the software.
Invalid data	Error while downloading graphic data.	Cancel the current print job. Re-check the data being sent.
Invalid outline	Error with the selected font being downloaded.	Cancel the current print job. Change to another font.
Invalid setup	Setup is invalid.	Reconfigure the printer's setup (see chapter 8). If error reoccurs, contact Service.
LCD malfunction	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service.
Memory overflow	Current print job contains too much information (selected fonts, large graphics)	Cancel the current print job. Reduce the amount of information on the label format.

Table C-3 Error Messages (continued)

Error message	Possible cause	Solution
No label found *	There are labels missing on the media.	Press the PAUSE key repeatedly until printer recognizes the next label on the media.
	The label size defined in the format sent to the printer does not match the actual media size.	Cancel the current print job . Change the label size to the correct value. Restart the print job.
	Printer is loaded with continuous media, the software is configured for die-cut media.	Cancel the current print job. Change either the software setting or the media; Restart the print job.
No label size	The label size is missing in the label format	Check programmimg for the S command.
No record found	No database record has been found when using optional memory card.	Check programming and/or database for record in question.
Out of paper *	Out of media	Insert new media.
	Media has not been properly loaded under the label sensor.	Check the media feed path.
Out of ribbon *	Out of transfer ribbon.	Load new supply roll of transfer ribbon.
	Ribbon melted during printing.	Cancel the current print job. Change the heat level in the software, **clean the printhead**, reload the transfer ribbon and restart the print job.
	Printer is loaded with thermal labels for direct thermal mode, and no ribbon is loaded, but the software is configured for transfer printing.	Cancel the current print job. Set the software to direct thermal mode. Restart the print job.
	The supply roll of transfer ribbon is not secured to the ribbon supply hub.	Tighten the roll of transfer ribbon by turning the knurled knob on the ribbon supply hub.

Table C-3 Error messages (continued)

Error message	Possible cause	Solution
Protocol error (*)	Printer has received an unknown or invalid command (display shows command abbreviated).	Depending on the type of error, the command can be skipped by pressing the [PAUSE] key or the print job must be canceled by pressing the [CANCEL] key.
	The interface of the computer and printer are set differently.	Switch the printer off. Correct the interface settings in printer setup (see chapter 8).
Read error	Error when reading from the optional memory card.	Check the data on the memory card. Save the data to another card and reformat the original card.
ROM malfunction	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service.
Structural error	The optional memory card file structure is not compatible.	Format the memory card.
Unknown card	The optional memory card is not formatted, or is not the type supported by printer.	Format the memory card. Use the correct type of card as specified in the Memory Card section.
Voltage error	Hardware error	Switch printer off, then on again. If error reoccurs, contact Service. Please note the voltage error displayed to Service personnel!
Write error	The optional memory card has encountered a hardware error.	Repeat the write process or reformat the memory card.
Wrong revision	Error during a firmware update. Firmware version is not valid for the present hardware version.	Load a valid firmware version.

Table C-3 Error Messages (continued)

Problem Solution

Problem	Cause and Solution
Thermal transfer ribbon wrinkles	Shield for the transfer ribbon is not correctly adjusted. Make the adjustment according to chapter 7.
	Printhead support is not correctly adjusted. Make the adjustment according to chapter 7.
	Transfer ribbon is too wide. Use transfer ribbon which is slightly wider than the media.
Print image has smears or voids	Printhead is dirty, clean the printhead (appendix D).
	Temperature is set too high, decrease heat level in software.
	Incompatible combination of ribbon and media. Choose a ribbon compatible to the media.
Printer does not stop after the transfer ribbon runs out	Direct thermal printing is selected in the software. Change the setting to thermal transfer printing.
Printer does not display "Paper out" message.	Media is not feed through the media edge sensor. Correct the path of the media (chapter 7).
	Media edge sensor is dirty. Clean the sensor.
Printer prints a sequence of characters instead of the actual label format	Printer is in ASCII dump mode. Cancel this mode.
Media is moving but the ribbon is not moving.	Transfer ribbon is installed incorrectly. Check to see if the inked side is facing the media (chapter 7).
	The combination of ribbon and media is incompatible. Choose a ribbon that is compatible.
Printer is skipping every other label when printing.	The label height in the software is set too large. Correct the setting and print the format again.

Table C-4 Problems / Solutions

Problem	Cause and Solution
Vertical white lines in the print image	Printhead is dirty, clean the printhead (appendix D).
	Printhead is defective (failure of heating elements), replace the printhead.
Horizontal white lines in the print image	Printer is being used with backfeed set to "smart" in cut or dispense mode (see chapter 8). Set backfeed to "always" in the Setup.
Print image is irregular or one side is lighter than the other side.	Printhead is dirty, clean the printhead (appendix D).
	The printhead support is not adjusted for the width of the media. Readjust the printhead support (see chapter 7).
"Ribbon out" message appears when ribbon is loaded	Transfer ribbon is not secured to the ribbon supply hub. Tighten the knob on the ribbon supply hub (see chapter 7).

Table C-4 Problems / Solutions (continued)

Appendix D - Maintenance / Cleaning

The **BP Precision** printers require very little maintenance.

Most important, clean the printhead on a regular basis. This will ensure a high quality printed image. It also reduces the amount of wear of the printhead. Aside from that, the only other servicing required is to clean the outside of the printer occasionally.

WARNING !
Before starting any maintenance, power OFF the printer and disconnect the printer from the outlet!

General Cleaning

During the normal operation of the printer, particles of dust and paper can accumulate inside the printer. Remove these particles with a soft brush or a vacuum.

The cover of the printer can be cleaned with a standard cleanser.

CAUTION !
Do not use abrasive cleaners or solvents !

Cleaning the Print Roller

Accumulations of dirt on the print roller can lead to impaired media transport.

Clean the roller as follows :

1. Open the printhead.
2. Remove the media from the printer.
3. Remove all deposits with a rubber cleaner or isopropyl alcohol and a soft cloth.

Cleaning the Printhead

During printing, the thermal printhead will accumulate dirt such as paper dust or particles of color from the ribbon. This accumulation can caused a deterioration of the print quality (contrast difference of the label, appearance of clear vertical stripes). To correct or avoid these types of problems, the printhead should be cleaned at regular intervals:

Direct Thermal Printing : every media roll change

Thermal Transfer Printing : each ribbon change

CAUTION !
Do not use sharp objects for cleaning the printhead !
Do not touch the protective layer of the printhead with your hands!

Clean the printhead as follows :

1. Open the printhead as far as possible.
2. Remove the media and ribbon from the printer.
3. Clean the surface of the printhead with a cleaning pen, or use a cotton swab dipped in isopropyl alcohol.
4. Let the printhead dry approximately 2 to 3 minutes before powering-on and restarting the printer.

Cleaning the Label Edge Sensor

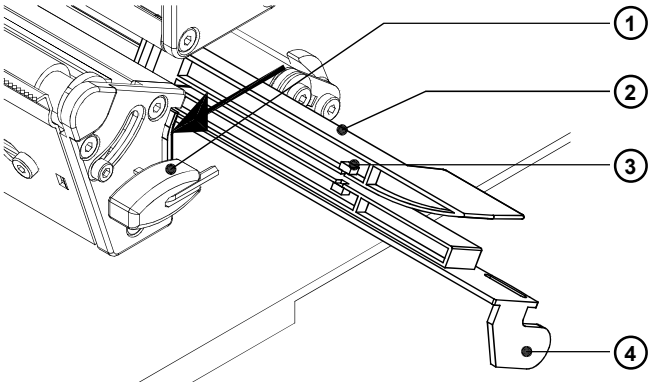

Fig. D-1 Cleaning the Label Edge Sensor

During operation of the printer, paper dust can accumulate on the label edge sensor. In some cases, this may lead to problems when sensing the media. If this is the case, you should clean the label edge sensor.

CAUTION !
Do not use solvents to clean the label edge sensor!
Do not use sharp objects to clean the optical sensor!

1. Remove the media from the printer.
2. Press the latch (**1**) in the direction of the arrow in figure D-1.
3. Continue pressing the latch and pull the label edge sensor (**2**) with the handle (**4**) to its outermost position.

CAUTION !
The label edge sensor cannot be removed totally ! There is a stop when the label edge sensor reaches the outermost position ! If you try to pull further the label edge sensor can be damaged !

4. Clean the label edge sensor and its optical sensors (**3**) with a soft brush or a cloth dipped in isopropyl alcohol.
5. Slide the label edge sensor back into its original position.

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Appendix E - Replacing Assembly Units

Replacing the Printhead

The printers are designed so the printhead replacement can be completed without making any adjustments.

For **BP Precision 200** and **BP Precision 300** this applies to both replacing failed printheads and switching between printheads with 203 dpi and 300 dpi print resolution.

CAUTION !
The printhead (1) is attached and aligned on a head plate (2). Do not loosen the screws (3), that attach the printhead to the head plate.

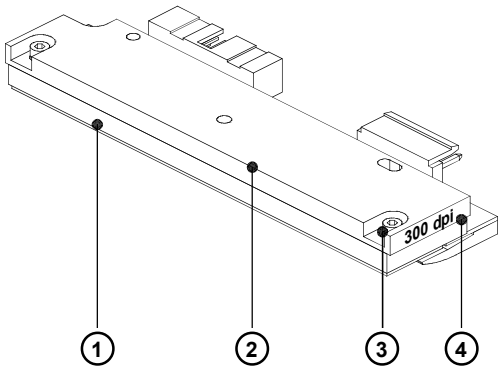

Fig. E-1 Printhead

For easy distinction between the printheads, a label (**4**) with information about the printer type is located on the head plate.

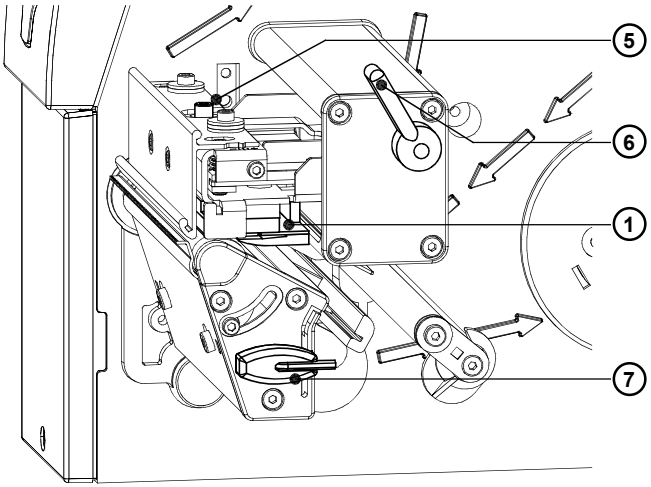

Fig. E-2 Changing Printhead (I)

WARNING !
Unplug the power cord from the power source before starting!

CAUTION !
Protect the printhead against damage by electrostatic dischargement !

- **Put the printer on to a grounded conductive surface !**
- **Ground yourself during printhead replacement for example using a grounded wrist-strap !**
- **Do not touch the connector pins of the printhead by naked hands !**

Make sure the glass surface on the printhead is not touched by sharp objects or your hand!

1. Remove the media from the printer.
2. Swing the lever (**6**) to the position shown in figure E-2. In this position, the printhead assembly is unlocked but still lying on the print roller.
3. Loosen the printhead locking screw (**5**) using the Allen key (**7**).
4. To lift the printhead assembly, swing the lever (**6**) clockwise until it stops.
5. Remove the printhead (**1**) from the pins (**11**) on the printhead carriage.

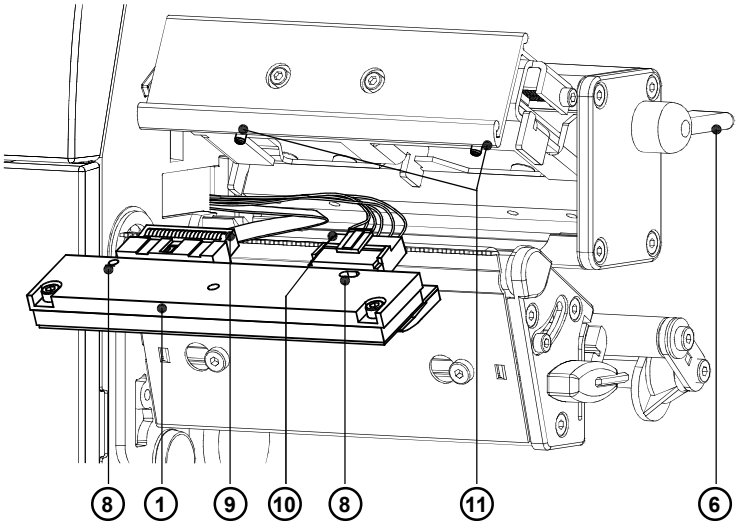

Fig. E-3 Changing Printhead (II)

6. Carefully unplug the printhead (**1**) from the connectors of the printhead cables (**9 and 10**).

7. Connect the new printhead to the cables.

8. Place the printhead into the assembly and insert the holes (**8**) onto the pins (**11**).

9. Tighten the locking screw (**5**) by hand. Check that the printhead is completely secured in the printhead carriage.

10. Swing the lever (**6**) again into the position shown in figure E-2.

11. Tighten the locking screw (**5**) completely. Do not over-tighten the locking screw (**5**).

Replacing the Print Roller and the Rewind Assist Roller

NOTICE !
There is described the replacement of the print roller and the rewind assist roller for the P-version printer types in this chapter.
The replacement of the print roller at the other printer types can be made in the same way !

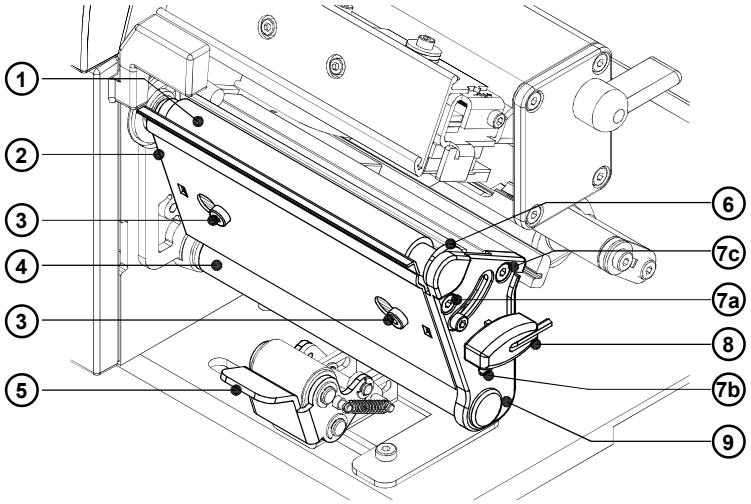

Fig. E-4 Changing Print Roller and Rewind Assist Roller (I)

WARNING !
Unplug the power cord from the power source before starting!

1. Lift the printhead up and swing the locking system (**5**) away from the rewind assist roller (**4**). Remove the media from the printer.

2. Take the Allen key (**8**), loosen the screws (**3**) and remove the dispense plate (**2**).

3. Remove the three screws (**7**).

4. Remove the plate (**9**) and the printhead support (**6**) from the axle of the print roller (**1**) and the rewind assist roller (**4**).

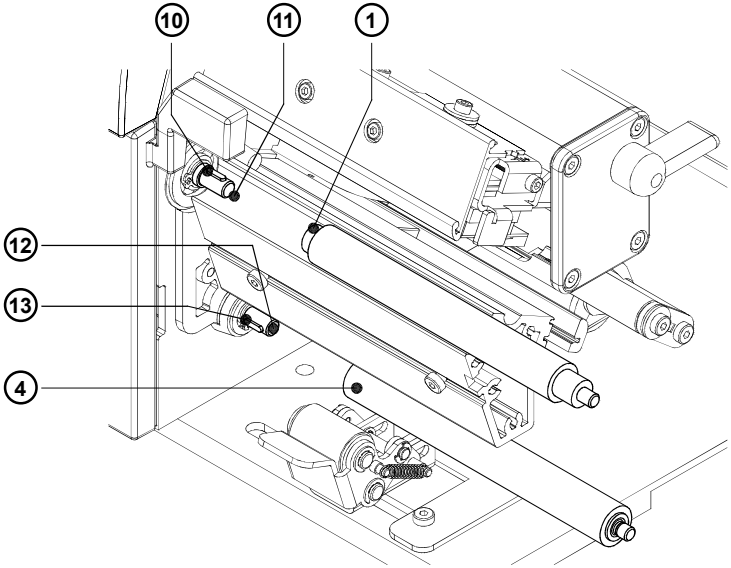

Fig. E-5 Changing Print Roller and Rewind Assist Roller (II)

5. Remove the print roller (**1**) or the rewind assist roller from the respective shafts (**11, 12**).

CAUTION !
Before assembling the new roller check if the keys (10, 13) are placed correctly in the shafts (11,12) !

6. Slide the new print roller or rewind assist roller onto the appropriate shaft. Make sure the groove in the axle of the roller (**1, 4**) is aligned to the key (**10, 13**) on the shaft (**11, 12**).

7. Reinstall the plate (**9**) and printhead support (**6**).

8. Tighten the screws (**7**) **a** screw first, then the **b** screw and then the **c** screw.

9. Reassemble the dispense plate (**2**).

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Appendix F - Firmware Updates

General Information

Over a period of time, the printer's firmware is subject to constant development and revisions to allow for new features, easier error correction, etc.
The firmware is stored in a flash-EPROM, which represents a new technology in thermal transfer printers. For firmware updates, a file containing the updated version can be copied to the printer using the parallel interface.
The firmware file is available on a disk or can be obtained from the Internet.

Firmware Update Using the Parallel Interface

1. Switch from "Online" mode to the Offline Menu by pressing the MODE key.
2. Press the ↑ key or the ↓ key until the "Service" menu is displayed. Press the ↵ key to confirm the selection.
3. The display shows "Firmware upd.". Press the ↵ key.
4. If the "Firmware update" option is protected by a PIN, "PIN: 0000" will appear on the display. The numbers of the PIN may be changed individually using the ↑ key and the ↓ key. The number to be changed will be flashing on the display. You can switch to the next number by pressing the ↵ key. If the input of all numbers is correct, the access to the "Firmware update" option is made possible.
5. Upload the firmware file (e.g. 297_5209.FMW) to the printer using MS-DOS. Under MS-DOS, type the following copy command :

   COPY 297_5209.FMW LPT1: /b

6. During the firmware upload, the printer's LCD will indicate the progress with a progress bar. After completing the update process, the LCD will display "OK ↵ ". This indicates the completion of the updating.
7. Press the ↵ key and the printer returns to "Online" mode.

Firmware Update from Memory Card

Preparing the Memory Card

1. Format a CompactFlash Card in the printer using the command "Format Card" in the Offline menu.
   That way the directories "fonts", "images", "labels" and "misc" are installed on the memory card.

2. Insert the formatted card in to a CompactFlash drive of a PC and copy a firmware file to the directory "misc".

Firmware Update

1. Insert the memory card with the firmware file in to the slot of the printer.

2. Switch from "Online" mode to the Offline Menu by pressing the MODE key.

3. Press the ↑ key or the ↓ key until the "Service" menu is displayed.
   Press the ↵ key to confirm the selection.

4. The display shows "Firmware upd.". Press the ↵ key.
   Press the ↑ key or the ↓ key until "Firmw. fr. card" is displayed. Press the ↵ key.

5. If the "Firmware update" option is protected by a PIN, "PIN: 0000" will appear on the display. The numbers of the PIN may be changed individually using the ↑ key and the ↓ key. The number to be changed will be flashing on the display. You can switch to the next number by pressing the ↵ key. If the input of all numbers is correct, the access to the "Firmware update" option is made possible.

6. In the second line of the display the name of the firmware file (e.g. 297_5209) is shown.
   If there are several firmware files on the memory card, press the ↑ key or the ↓ key to select a file. Confirm the selection by pressing the ↵ key.

7. The selected firmware file is copied. During the firmware upload, the printer's LCD will indicate the progress with a progress bar. After completing the update process, the LCD will display "OK ↵ ". This indicates the completion of the updating.

8. Press the ↵ key and the printer returns to "Online" mode.

Error Messages During the Firmware Update

In the event an error occurs during the updating process, the error code will be displayed on the LCD:

'C' : Check sum error (possibly "/b" missing in COPY command or a corrupt firmware file)
'H' : Header fault (possibly "/b" missing in COPY command or a corrupt firmware file)
'E' : EPROM could not be erased
'V' : Programming voltage too low
'P' : Programming fault

NOTICE !
If any one of the faults described above occurs, the previous firmware setting is invalid and the update has to be started again. In some special cases, it is possible that the printer will not return to normal operation mode after powering on after a failed firmware update. In this case, upload a previous firmware file over the parallel interface after powering on.

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EU - Conformity Declaration

We declare herewith that as a result of the manner in which the machine designated below was designed, the type of construction and the machines which, as a result have been brought on to the general market comply with the relevant fundamental regulations of the EU Rules for Safety and Health. In the event of any alteration which has not been approved by us being made to any machine as designated below, this statement shall thereby be made invalid.

Description:	Type:
Transfer/Thermal-direct Printer	**THT BP Precision 200/200P** **THT BP Precision 300/300P** **THT BP Precision 600/600P**

Applied EU Regulations and Norms:

- EC Machinery Regulations	**98/37/EU**
- Machine Safety	EN ISO 12100-1:2003 EN ISO 12100-2:2003
- EC Low Voltage Regulations	**73/23/EEC**
- Data and Office Machine Safety	EN 60950-1:2001
- EC Electromagnetic Compatibility Regulations	**89/336/EEC**
- Threshold values for the Interference of Data Machines	EN 55022:1998 + A1:2000 + A2:2003 - Class A
- Limits for harmonic current emission	EN 61000-3-2:2000
- Limits of voltage fluctuation and flicker	EN 61000-3-3:1995+A1:2001
- Immunity characteristics- Limits and methods of measurement	EN 55024:1998 + A1:2001 + A2:2003

Signed for, and on behalf of, the Manufacturer :

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Sömmerda, 28.01.05

Erwin Fascher
Managing Director